

REPORT OF THE JOINT NEW ENGLAND
RAILROAD COMMITTEE
TO THE
GOVERNORS OF THE NEW ENGLAND STATES

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REHABILITATION BY CO-OPERATION
A RAILROAD POLICY FOR NEW ENGLAND

JUNE, 1923

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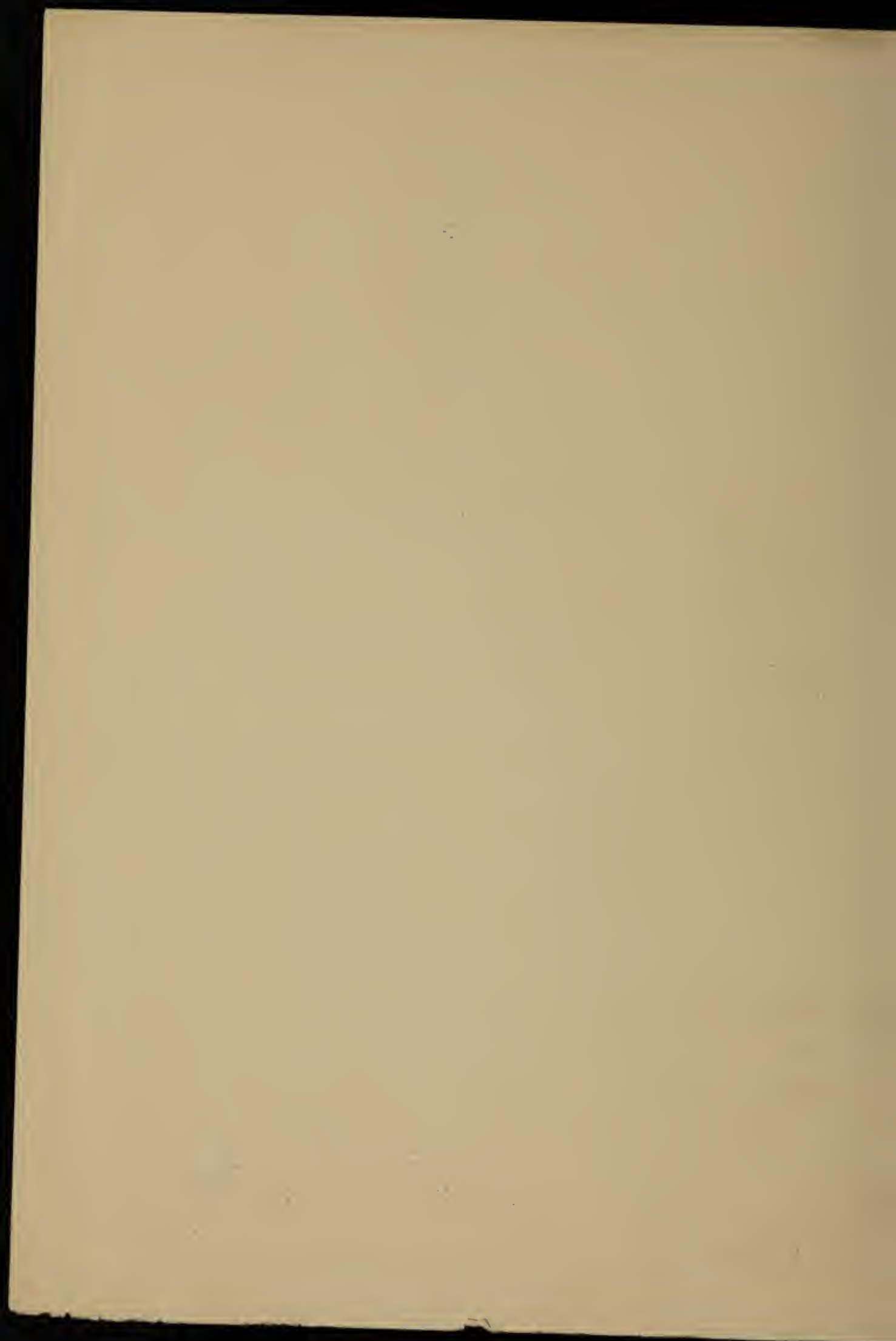
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OF THE NEW ENGLAND STATES

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REPORT OF JOINT NEW ENGLAND RAIL- ROAD COMMITTEE TO THE GOVERNORS OF THE NEW ENGLAND STATES

REHABILITATION BY COOPERATION A RAILROAD POLICY FOR NEW ENGLAND

APPOINTMENT OF COMMITTEE

A conference of the Governors of the six New England States was held in June, 1922, at the State House, Boston, pursuant to an invitation from the Governor of Massachusetts, to consider what should be the attitude of New England in relation to section five of the Transportation Act of 1920 (Esch-Cummins Act) which directed the Interstate Commerce Commission to "prepare and adopt a plan for the consolidation of the railroad properties of the continental United States into a limited number of systems."

At this conference it was agreed that the Governors should each appoint a committee of five composed of citizens of their respective States, and that as the problem was evidently one of common interest the committees should work in harmony.

August 15, 1922, upon the call of Governor Cox the thirty members of these six committees met in the Council Chamber of the State House and created an Executive Committee composed of the six chairmen of

the State Committees with the Massachusetts chairman as Chairman of the Executive Committee.

It was also agreed that each State Committee should proceed to hold public hearings in its own State.

It was further agreed that a sound conclusion as to what form of consolidation would be best for the future welfare of New England could be reached only as the result of an intensive study of the whole transportation problem of New England and that this should include sea transportation, rail transportation, sea and rail routes, rail and inland water routes, truck transportation, differential routes and rates, interchange of traffic between New England and other States and interchange of traffic within New England. It was decided that the Committee should also study the present physical condition of our New England railroads, the additional facilities and equipment required, including the financial condition and needs of our New England railroads, and finally a painstaking examination into the effectiveness of the present management of our New England railroads.

It was agreed that when it came to the examination and testimony of the railroad officials the members should sit as one joint committee.

It was also the opinion of the Committee that as trained expert assistance would be needed in the study of many of the intricate technical problems involved, the joint committee should establish an expert staff.

ADVISORY TECHNICAL STAFF

Howard G. Kelley was selected by the Committee to be the head of this technical staff. Mr. Kelley has had

long experience on numerous roads in different sections of this country, first as an engineer and then on the operating side and finally as operating vice-president of the Grand Trunk Railway System, and then for more than five years as President of the Grand Trunk Railway and of the Grand Trunk Pacific including the steamship lines. The members of the Committee believe they were fortunate in the selection of Mr. Kelley and fortunate in the chance that his resignation as President of the Grand Trunk because the Canadian Government was assuming its ownership and operation, happened to coincide with the Committee's need of expert advice. Mr. Kelley selected as his principal assistants J. L. White as operating statistician, C. H. Gerber as engineer, C. E. Lee as car service expert, M. J. Wise as inventory and stores expert, A. B. Fletcher as motor truck expert, and from time to time such other temporary expert assistants as the progress of the work required. The Committee has also received invaluable aid from Frank C. Wright, late "Assistant Director of Operations" of the U. S. Railroad Administration, and equipped by long experience to aid the Committee.

PROCEDURE FOLLOWED BY COMMITTEE

The public hearings in the several states were concluded in October. A joint public hearing in the State House, Boston, was then held, lasting three days, open to all and closed when it appeared that all wishing to be heard had been given the opportunity.

On November 23, the Committee sitting as a whole began its first across-the-table question-and-answer discussion with the officers of the Bangor & Aroostook

Railroad, first the President, and then with his hearty co-operation the General Manager, the Mechanical Superintendent, the Purchasing Agent, the General Freight Agent, Superintendent of Car Service, Engineer of Maintenance, Division Superintendents and Train Masters. This first examination involved four days and occupied 448 pages of the Committee's record. The questions were largely asked by members of the technical staff, but many questions were asked daily by members of the Committee.

In like manner the effort to collect the material facts proceeded in regard to the other New England railroads. In the case of the New Haven Railroad, our largest system, the examination of fourteen officers occupied 19 days and extends to 2601 pages of the Committee's record and involved the production of scores of charts and tables of facts and figures relating to the operation of the property.

All together one hundred and fifty individuals appeared before the Committee at its various hearings. The Record of the Committee comprises 6387 pages.

Members of our expert staff also have been constantly gathering further information by contact with the statistical and operating departments of the several roads and from the comprehensive records of the Interstate Commerce Commission at Washington and the files of the different New England state commissions.

The response of the presidents and their respective staffs to the almost innumerable and often burdensome requests of this Committee for information or statistics on this or that topic of study has been painstaking and cordial.

Members of the Committee and the Committee's staff at the invitation of the President of the New Haven Railroad and the President of the Boston & Maine Railroad made a three days' trip over the main lines of traffic of each of these systems visiting the more important terminals, classification yards, car and locomotive shops and other important points, and Mr. Kelley and his staff from time to time have examined various portions of the properties as their studies made it desirable.

THE NEW ENGLAND RAILROADS AS A GROUP

GENERAL DESCRIPTION

The New England railroads* comprise 8,135 miles of line. (Map 1.)

The total capitalization is \$976,048,743, represented by \$619,657,734 bonds and \$356,391,009 capital stock.

The gross earnings for the calendar year 1922 were \$288,961,226 exceeded in this country only by the earnings of the Pennsylvania system and the New York Central system.

The number of railroad employees is approximately 83,000.

The number of locomotives is 3,392; passenger cars 5,410 and freight cars 80,604.

The New England Railroads have made net capital expenditures of \$110,282,000 in the past eight years for the improvement of their facilities and for new equipment. Of this total \$42,809,000 has been for new equipment, \$16,549,000 for locomotives alone.†

The total passengers carried in 1922 was 153,213,177,

* Unless otherwise noted statistics of New England railroads as a group include the following:

Bangor & Aroostook Railroad	Boston & Maine Railroad
Atlantic & St. Lawrence Railroad	Boston & Albany Railroad
(Grand Trunk Line in Maine)	New York, New Haven & Hartford Railroad
Maine Central Railroad	
Central Vermont Railway	Central New England Railroad
Rutland Railroad	

† Appendix A. Net Capital Expenditures for Road and Equipment. All New England Railroads, July 1 1914, to December 31, 1922.

which translated into “ passenger miles ” is equivalent to 3,336,832,000 passengers carried one mile. The average length of ride per passenger per road in New England is 21.8 miles as compared with 36.7 miles for the United States.

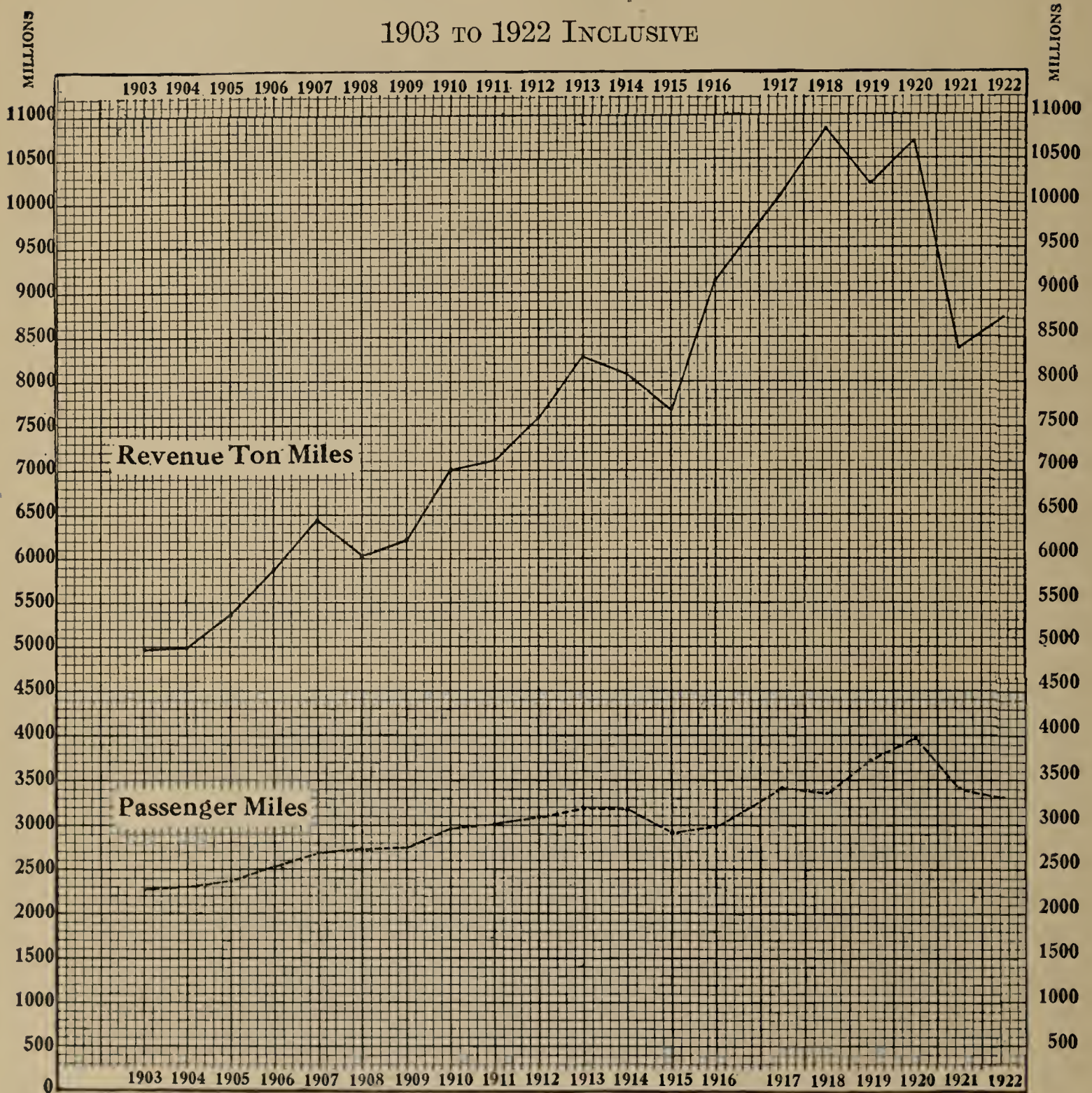
The total revenue tons moved in 1922 was 78,845,630, and this translated into revenue tons carried one mile shows that our New England railroads in that year manufactured 8,814,777,000 freight ton miles. The average haul per ton of freight per road is 111.8 miles in New England as compared with 186.5 miles for the United States.

TON MILES AND PASSENGER MILES

The volume of freight and passenger traffic as expressed in terms of revenue ton miles and passenger miles borne on the New England railroads during the last twenty years has been as follows:

Year	Revenue Ton Miles	Passenger Miles
1903	4,982,302,000	2,280,968,000
1904	4,991,302,000	2,303,185,000
1905	5,361,765,000	2,376,606,000
1906	5,888,051,000	2,522,950,000
1907	6,449,631,000	2,693,965,000
1908	6,034,634,000	2,740,626,000
1909	6,224,045,000	2,741,803,000
1910	7,007,292,000	2,969,774,000
1911	7,125,827,000	3,009,275,000
1912	7,574,114,000	3,090,156,000
1913	8,286,967,000	3,188,580,000
1914	8,095,901,000	3,183,184,000
1915	7,660,425,000	2,937,379,000
1916	9,141,727,000	2,990,400,000

REVENUE TON MILES AND PASSENGER MILES
NEW ENGLAND RAILROADS,*
1903 TO 1922 INCLUSIVE



* Statistics are for years ending June 30, 1903 to 1916, inclusive, and for years ending December 31, 1917 to 1922, inclusive. They exclude in all years figures for the following small lines in the Boston & Maine system for which complete statistics were not available prior to 1912:

Vermont Valley	Mount Washington
Sullivan County	Montpelier and Wells River
St. Johnsbury & Lake Champlain	Barre and Chelsea
York Harbor and Beach	

This accounts for the slight difference in the statistics for 1922 in this table and those for 1922 on other pages of this report in which these small lines are included.

Year	Revenue Ton Miles	Passenger Miles
1917	10,084,859,000	3,431,432,000
1918	10,850,628,000	3,364,325,000
1919	10,202,336,000	3,732,770,000
1920	10,691,283,000	3,970,913,000
1921	8,380,871,000	3,408,035,000
1922	8,702,754,000	3,320,170,000

	Ton Miles		Passenger Miles	
	New England	United States	New England	United States
Percent of increase				
1903 to 1912....	52.02	50.09	35.48	54.51
Percent of increase				
1912 to 1922....	14.90	30.67	7.44	9.87

It will be seen that for the whole period of twenty years freight ton miles have grown faster than passenger miles and also that during the second decade the percentage of growth in freight ton miles has fallen much below the rate of increase for the country as a whole.

We comment on this because all our studies indicate that if New England wishes to avoid the risk of coming to a standstill it is time to take some constructive action to give our industrial development a fresh impetus.

INTERCHANGE WITH CONNECTING LINES

The total number of freight cars moving into and out of New England to and from its rail connections, beyond the Hudson River and also through the northern rail gateways, amounted in the year ending June 30, 1922, to 1,209,005 cars inbound and 1,209,244 outbound, including both loads and empties. 1,097,391 loaded cars were received from and 443,347 loaded cars were delivered to their connections by the New Eng-

land lines.* This is an unbalanced movement. Five loaded cars come into New England for every two that go out, chiefly owing to the one way movement of coal, food and raw materials. Record of the tons of merchandise involved in this car movement is not kept but if we take the average car loading figure of each railroad we get a total freight movement in and out of New England for the year 1922 of 31,500,000 tons as an approximate estimate.

CHARACTER OF TRAFFIC

The traffic of the New England railroads as a group is characterized by a relatively high percentage of passenger business, including a heavy low fare suburban passenger business especially in the case of the New Haven, Boston & Maine and Boston & Albany railroads. The New England railroads originate little low grade bulk tonnage such as grain, coal, ore and the products of furnaces, steel mills and other heavy industries.† There is a high percentage of less than car load shipments. The rate on these small shipments is high, but they require rehandling by the railroad at transfer points to consolidate into cars according to destination and the average car load is light so that this traffic produces for the originating road little net money.

* Appendix B. Interchange of New England Railroads with Connections (year ending June 30, 1922).

† Appendix C. Description of Traffic of New England Railroads.

IMPORTANCE OF NEW ENGLAND'S WATER TRANSPORTATION

Before proceeding further with our railroad study it will be well to get before us the picture of New England's water transportation, its characteristics, the volume of traffic and the more important trade routes.

No other section of our coast line either on the Atlantic, the Gulf of Mexico or the Pacific contains an equal number of bays and arms of the sea affording such safe and easy access to deep water.

New England has always kept its face seaward even when under the new era of railroads it seemed to be permitting the ocean to play a less important part in its industrial development. More than seventy per cent of the New England population still live and the major part of our industrial activity is carried on within fifty miles of the seaboard. Within this fifty mile zone lives 97 per cent of the population of Connecticut, all of Rhode Island, 61 per cent of the people of Massachusetts, 57 per cent of New Hampshire and 77 per cent of Maine. (Map 2.)

On the water New England has a great four-track railway, or, if you please, ten tracks with all the desired sidings, ready for use without the outlay of a dollar for construction or for upkeep or to guard the right of way.

The practical doubling of the cost of rail transportation since 1913 due to the rise in wages and materials has given a new and much accentuated value to water transportation. New England is well situated to profit by this new condition.

It is true that soon after the opening of the great war the fabulous prices paid for steamers to go overseas disorganized our coastwise traffic. Then it took time to get the steamers back and restore the service, so that it is only within the last year or two that we are beginning to realize what the new balance between water and rail transportation means to New England.

PACIFIC COAST LINES

The new Panama Canal, likewise disturbed by war conditions, is to-day functioning with a rapidly increasing number of vessels month by month. There are now five steamship lines giving regular sailings from Boston to Pacific Coast ports through the Canal. One of these lines also gives service from Portland and another from Providence. New England has been brought nearer to the great and prosperous population of the Pacific Coast than the cities of Detroit, Pittsburgh, Cleveland or Chicago.

For example, the rate on shoes by Panama route from Boston to San Francisco is \$1.50 per hundred pounds, while from Chicago by rail it is more than twice as much—\$3.69 per hundred in car load lots and \$4.41 in less than car load lots. From Detroit the rail rate to San Francisco is \$3.76 (less than car load \$4.74); from Pittsburgh \$4.65 (less than car load \$4.74). Cotton piece goods from Boston by water 60 cents per hundred, from Chicago by rail \$1.58 (less than car load \$2.95½). Pianos from Boston 75 cents, from Chicago \$2.50 (less than car load \$5.10). Automobile tires from Boston 80 cents, from Chicago \$2.50 (less than car load \$4.82).* (Map 3.)

* Appendix D. Comparative Rates to Pacific Coast.

COASTWISE STEAMSHIP LINES

Nightly steamers ply from Portland, Boston, New Bedford, Fall River, Providence, New London, Norwich, Hartford, New Haven and Bridgeport to New York delivering New England merchandise at that great center of distribution intended either for local consumption or for further carriage by the many rail routes and water routes radiating from New York.

The steamers of the Merchants & Miners Transportation Company give excellent service from Boston and Providence to Philadelphia, Baltimore and Norfolk. The Clyde Steamship Company steamers maintain bi-weekly service to Charleston and Jacksonville. The Ocean Steamship Company has four first-class steamers which give sailings twice a week to Savannah. An all-water route to the principal Gulf ports is afforded by boat to New York and thence by the Mallory or the Southern Pacific steamers to the Gulf. The intensive manufacturing region of western Connecticut, including Hartford, New Haven, Bridgeport, Waterbury, Meriden and Ansonia, naturally ship from the port of New York which to the great advantage of southwestern New England flanks our western boundary. Maine and the Canadian Maritime Provinces link in to this system of coastwise transportation by steamers running to Boston and direct sailings from Portland to New York.

These southern coastwise steamer routes, running parallel to the coastline, take our merchandise around the badly car congested rail centers of New York and Philadelphia and they not only make quicker and more

dependable despatch but at substantially lower rates. They also afford combined differential water and rail routes to many important points in the Southeast, Middle West and Southwest to which they supply quick and regular service. (Map 4.)

The Ocean Steamship Company, for instance, controlled by the Illinois Central Railroad through its ownership of the Central Railway of Georgia, makes direct connection with the rails of that great system at Savannah so that in effect we have an Illinois Central eastern terminal at Boston offering New England the advantage of rates lower than standard, and fast service to many points in the interior states reached by that system.

The Merchants & Miners line also offers differential routes which connect with fast freights leaving Baltimore and Norfolk on the afternoon of the arrival of the steamers, via the Norfolk & Western from Norfolk, and via the Baltimore & Ohio from Baltimore.

We think our merchants and manufacturers have not yet fully taken advantage of the recently enhanced importance of our water and water-rail routes and perhaps the products of our industries need some readjustment to better suit these new markets. The New England manufacturer should revise his map; the Pacific Coast within the last thirty-six months has been moved a thousand miles nearer to his factory door.

FOREIGN COMMERCE

It is not necessary now to dwell on the steamers serving New England mostly through the port of Boston which arrive from all parts of the world bringing hides

and skins, wool, cotton, wood pulp, sugar, hemp, coffee and many other supplies and raw materials for our people and our industries. It is true that the port of Boston because of certain limitations has not been particularly successful in recent years in serving as a gateway for other states to the west of New England but no mistake should be made in regard to the service rendered to the people of New England. We give as a picture of this service (Appendix E) the steamer arrivals coastwise and foreign for the first fifteen days of April. It is worth examining.

VOLUME OF WATERBORNE TRAFFIC

The total tonnage moving in and out of our New England water gateways for the year 1921 amounted to 26,158,573 tons compared with 31,500,000 tons of all-rail freight moving through our rail gateways for the year ending June 30, 1922.

This waterborne tonnage was divided as follows:

Port	Total Tons
Northern Maine—Searsport, Bangor, Rockland and smaller ports	659,501
Southern Maine—Portland and smaller ports..	2,522,556
New Hampshire—Portsmouth	98,754
Boston and Northern Massachusetts ports....	10,602,919
Southern Massachusetts—Fall River, New Bedford and smaller ports	4,065,083
Rhode Island—Providence, Newport, Pawtucket, Bristol	4,432,232
Connecticut—New London, New Haven, Bridgeport, Hartford and smaller ports	3,777,528
Total—New England	26,158,573

This tonnage includes coal* and oil as well as import and export traffic and all other water borne cargoes.

* Appendix F. New England Coal Receipts, 1916-1922.

COASTWISE MERCHANDISE MOVEMENT

For the first four months of the calendar year 1923 the coastwise steamship movement of merchandise moving through our New England ports by regular coastwise steamship lines shows an increase of 59.5 per cent as compared with the same period of last year.

The tonnage carried in the intercoastal service via the Panama Canal was 77 per cent greater for the first four months of 1923.

TOPOGRAPHY OF NEW ENGLAND RAILROADS

We turn back now to our New England railroad transportation.

It is well to have the general topography of our New England railroads in mind. (Map 5.)

The main east and west line of the New Haven leaves Boston, and by easy grades cuts across to Narragansett Bay at Providence, whence it proceeds by water level route along the south shore to the Harlem River and New York City. Eight miles west of New Haven a double-track road branches off the main line in a north-westerly direction and passing through Danbury crosses the Hudson on the Poughkeepsie bridge and reaches the western terminal of this line at Maybrook. It is an important freight route.

The next east and west line is the old New York and New England which starting at Boston passes through Willimantic, Hartford and Waterbury to the Poughkeepsie bridge across the Hudson. It has heavy grades and at present is comparatively little used for either passenger service or freight.

The main line of the Boston & Albany passes through Worcester, Springfield and Pittsfield to a connection with the New York Central on the east bank of the Hudson at Rensselaer. It crosses two main divides with heavy grades, reaching the top of the first at 960 feet between Worcester and Springfield, then down to practically tidewater again at Springfield. From here the road rises until it crosses the main chain of the

Berkshires at an elevation of 1,440 feet, thence down to the Pittsfield meadows and so on to the Hudson River by reasonable grades.

The main line of the old Fitchburg Railroad constitutes the fourth line across New England and encounters the same divides as the Boston & Albany, but its two maximum altitudes of 1220 feet at South Ashburnham and 830 feet at the Hoosac Tunnel are substantially lower and the line is 13 miles shorter. It reaches its western terminus at Rotterdam Junction where it connects with the main line of the New York Central and of the West Shore.

The two northern gateways at White River Junction, Vermont, and Newport, Vermont, where the Boston & Maine connects with the Grand Trunk and the Canadian Pacific, respectively, will be referred to more specifically later.

The balance of the New England railroad mileage, except for the Boston & Maine lines paralleling the shore to Portland, chiefly follows the north and south valleys affording easier grades and representing less original cost of construction. (Map 6.)

Three of the four east and west lines just mentioned were assisted by state aid in Massachusetts, granted because of the belief that New York was getting ahead of Massachusetts and Northern New England and that unless the state stepped in and helped to build these roads New England's industrial future was in danger.

TON MILES AND PASSENGER MILES

We give the rank of the New England railroads as to passengers and freight, based upon freight ton miles and passenger miles (year ending December 31, 1922) :

	Revenue Ton Miles	Passenger Miles
New Haven *	3,020,410,000	1,857,933,000
Boston & Maine	2,801,938,000	863,856,000
Boston & Albany	1,089,660,000	376,178,000
Maine Central	857,667,000	128,431,000
Central Vermont	369,128,000	33,148,000
Bangor & Aroostook ...	267,482,000	20,580,000
Atlantic & St. Lawrence (Grand Trunk)	206,851,000	13,133,000
Rutland	201,641,000	43,573,000
Total	8,814,777,000	3,336,832,000

The task of a railroad is to manufacture freight ton miles and passenger miles. If a railroad hauls a car containing 30 tons of freight 20 miles that movement will produce 600 ton miles. While the car was standing in a yard before it began to move the railroad was earning nothing from this car or its contents. It might have stood there a year, but if it had it would not have contributed a cent to the railroad. After the car has been pulled the 20 miles, the instant it stands still it again stops earning. We all realize that we pay the railroad only for the service of moving our freight from one place to another. The moment our freight stands still we are receiving no benefit, and the railroad earns nothing.

* In all cases statistics for the New Haven Railroad include Central New England Railroad unless otherwise stated.

FREIGHT EARNINGS DEPEND UPON KEEPING
CARS MOVING

But we have not told the whole story. A car standing still for a day not only earns absolutely nothing but it is worse than this. Under the "per diem" rule, if the car belongs to another railroad \$1 must be paid each day for the use of the car to the railroad owning the car.* The dollar must be paid whether the car moves or does not move and whether empty or loaded; but if the car is loaded and moves 20 miles it will have earned something out of which to pay the dollar, but if this loaded car stands still for 24 hours or a week or a month it not only has earned nothing but the railroad on the tracks of which the car stands is actually out of pocket a dollar or seven dollars or thirty dollars. If the car stands on a side track for a year it will cost the railroad \$365. Furthermore, it makes no difference really whether this car belongs to some other road or to the railroad allowing it to stand idle on its own tracks. If the railroad does not own the car it must pay one dollar in cash to the owning road, but if it does own the car, interest on the investment plus depreciation and upkeep amounts to practically a dollar a day—certainly over 90 cents. So that any railroad holding a car idle for 24 hours, whether or not the car is owned by the railroad holding it, earns nothing and besides is set back a dollar. Even this is not allowing for the fact that there may be profitable business for the car to perform, which is being lost to another road or a truck or boat. The car may be standing, moreover, in an expensive terminal, representing a heavy investment of

* Appendix G. Increase in Per Diem Rates 1902-1922.

capital, the profitable use of which may be hindered by too many idle cars.

It follows from what we have said that a railroad earns money only when and while the car is actually moving, and, moreover, that it must be a nimble car as the car per diem is always eating up the net earnings. If the car moves slowly over the system with frequent pauses, a railroad may obtain no net profit or any benefit whatever for hauling the car from one end of its system to the other. The per diem will have eaten up the net, but a narrow margin at best, or perhaps eaten more than the net.

NEW HAVEN RAILROAD
Operation

Proceeding now to take up the individual roads, we begin with the New Haven as it is the largest New England producer of ton miles and passenger miles. (Map 7.)

AVERAGE DAILY MOVEMENT OF FREIGHT CARS

From what we have said it is clear that taking account of all the cars on the system the average distance moved per car each day constitutes a significant test of the efficiency with which a railroad is operated. We give the figures for the year ending June 30, 1922, and in a parallel column the average percentage of bad order cars which is of course one factor that should be taken into account in making this comparison:

	Average Car Miles Per Freight Car Day (All Cars)	Per Cent Bad Order Cars
Boston & Albany	27.8	7.2
Atlantic & St. Lawrence (Grand Trunk Line to Portland)	21.8	7.5
Central Vermont	19.3	34.8
Maine Central	17.8	15.6
Rutland	17.7	24.6
Boston & Maine	17.1	19.4
Bangor & Aroostook	13.8	25.2
New Haven	13.6	24.9

The average for all the railroads in the Eastern District of the United States for the same period was 19.8 car miles per freight car day.

It will be noted that we have taken a period when our railroads were unaffected by the shop strike.

It is true that the New Haven had a larger proportion of bad order cars than the Boston & Maine, and that this pulled down the New Haven's average miles per freight car. This is true but not to an extent that materially changes the picture, as will be seen from the following comparison of the car miles per freight car day of the various New England roads with bad order cars eliminated (year ending June 30, 1922) :

Boston & Albany	30.0
Central Vermont	29.5
Rutland	23.6
Atlantic & St. Lawrence	23.3
Boston & Maine	21.2
Maine Central	21.2
Bangor & Aroostook	19.3
New Haven	18.1

It may justly be urged on behalf of the New Haven that with its many branches and consequent multiplicity of junction points it is bound to show a less rapid movement than the Boston & Albany with its relatively small branch line mileage. But the discrepancy seems greater than it should be. The Maine Central we think has quite as large a proportion of branch lines, and yet it made an average of 21.2 miles per day compared with the New Haven's 18.1. If we compare the New Haven performance with that of the Boston & Maine, which encounters quite similar difficulties, we find that the Boston & Maine management produced during this year ending June 30, 1922, an average of 21.2 car miles per freight car day per serviceable car to the New Haven's 18.1 car miles.

The average daily distance of 21.2 miles travelled by a freight car on the Boston & Maine system may not seem so very different from the 18.1 of the New Haven Railroad, but let a manufacturer instruct his engineer to slow down his machinery 15 per cent and the slower speed will put his profits out the window and eventually get him into financial difficulties. So it is with railroads—the slow-mover is generally the tail-ender.

THE COST OF SLOW MOVEMENT OF FREIGHT CARS

If the New Haven by more efficient operation could have speeded up the average car movement on its system 3.1 miles a day, which would have brought it up to the level of the Boston & Maine, it would have reduced its total car days of serviceable cars for the year to 10,072,783. This would have effected a saving of 1,731,317 car days, equal to a saving of that number of dollars, namely 1,731,317 dollars. This means it would have pulled the same cars on its line and earned the same gross money, but it would have returned the foreign cars 17 per cent sooner to its connections and therefore would have to pay out for car hire a great deal less money, and its own cars to whatever extent they were employed would have either travelled that much sooner on to other lines so that the other lines would begin paying the New Haven a dollar a day for their use, or else, in case some of the home cars remained on the New Haven system all the time, would have saved a lot of car days so that these cars could have performed additional service for which the New Haven would have earned more money. The net result is really the same in all three cases. A freight car is worth a dollar a day,

and this should properly be charged against each car on any given system whether the cars belong to the system or are borrowed from some other road. Moreover, it should be borne in mind that over and above this mere saving in car days and in consequence the \$1,731,317 car per diems it frees the road for just so much more additional earning traffic. Slowing down car movement has precisely the same effect as slowing down the machinery of a textile mill or a shoe factory. Less units will be produced and therefore just so much less can be sold or collected for and yet all the non-productive employees must be paid just the same; the salaries of the executive officers, the superintendents, the terminal employees, the gatemen, etc., etc., most of the charges for depreciation of the property and also the overhead charges for interest on capital, at least so far as represented by bonded indebtedness, go on just the same.

Between 1915 and 1922 the New Haven has spent about \$60,000,000 on the road—bought new and more powerful locomotives and built the two great modern classification yards at Cedar Hill and Providence expressly intended to expedite traffic and also put in many other important improvements, and yet we can see but little sign of a speeding up of its car movement.

DELAYS IN CLASSIFICATION YARDS

We have made a study of the time consumed getting freight cars through the three big classification yards of the New Haven system; in other words, the time consumed from the moment a locomotive pulls a car into one of these yards until another locomotive pulls

it out to go on its way. We are referring only to cars destined for points beyond the yard, so that loading or unloading these cars is eliminated and we are dealing only with cars which the railroad has entirely under its own control and for the prompt movement of which it alone is responsible.

These three big “hump ” classification yards of the New Haven Railroad are located at Providence, New Haven (Cedar Hill), and Maybrook, at the western end of the Poughkeepsie bridge line. These yards represent a total investment by the New Haven of more than twelve millions of dollars. Practically all this money has been expended in recent years, so that these yards represent the latest ideas for obtaining speed and economy in car sorting or classification.

The average number of cars classified daily in the year ending June 30, 1922, was as follows:

Maybrook	510
Cedar Hill	2,389
Providence	511

At Maybrook it is practically only the cars moving east that are classified; at Cedar Hill about an equal number are classified going each way; at Providence only a small proportion of the cars going west are classified.

Each of these three big yards is equipped with a “hump ” to the top of which a locomotive gradually pushes a train. As the pushing locomotive without stopping pushes these cars successively to the top of the hump they are uncoupled and allowed to run down the opposite side by gravity in “cuts ” of one or two

or three or as the desired classification may require, towards the numerous assembling tracks upon which the new classified trains are being made up. An operator in the tower on the hump operates by key-board the switches of the assembling tracks so as to cause the "cuts" to roll onto the appropriate track so that they may constitute a part of the new train. These cuts come down the hump in rapid succession one behind the other, several rolling at the same time. A brakeman at the top of the hump jumps onto each cut and regulates the speed with the handbrakes. He then makes sure that the automatic coupler has properly coupled this last cut to the one which preceded it, and then jumps on a motor car running at frequent intervals back to the top of the hump where he takes his position ready to climb onto another cut. This operation is continuous until the train being pushed up the hump has had all its cars "shaken out." Then another freight train is pushed up and the work of sorting proceeds.

The time which elapses from the moment any given car enters one of these big classification yards is of course not merely the time occupied in "putting it over" the hump but it includes all the time which elapses from the moment a locomotive pulls the car into the yard until a locomotive pulls it out and it resumes its journey.

We give below the average time it took to get a car through the Maybrook, New Haven and Providence yards during the year ending June 30, 1922, and also for the six months ending December 31, 1922. In the case of Maybrook we do not include westbound cars because the New Haven does not move cars westbound in

regular trains out of the yard. At Providence only a small number of the cars moving west are classified and therefore we exclude these from consideration.

The average length of time for each car entering the classification yards from the time it entered until it was under way again was

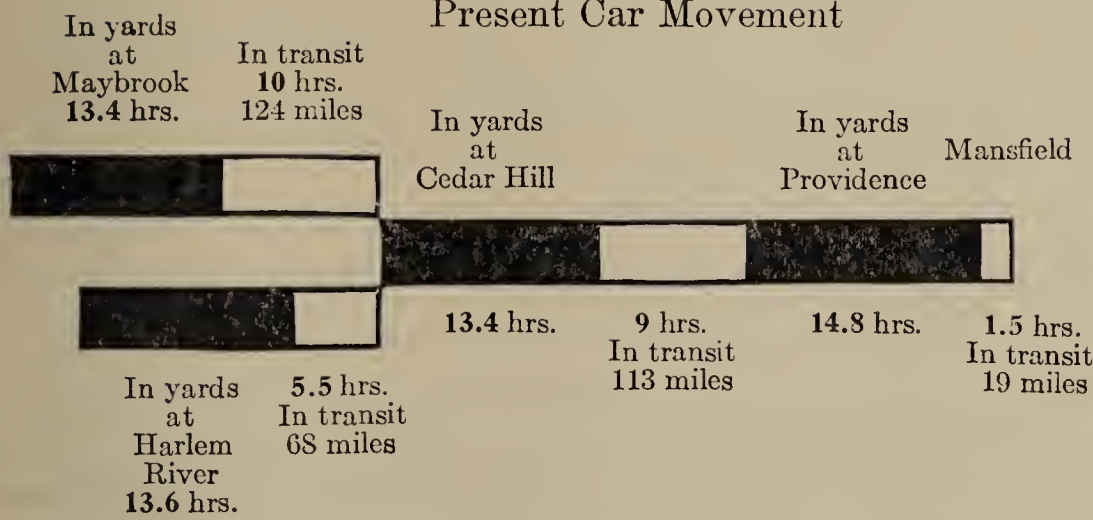
	Year ending June 30, 1922	6 mos. ending Dec. 31, 1922
Maybrook (east)	13.4	38.2 hours
New Haven (Cedar Hill).....	13.2	21.6 “
Providence	14.8	19.7 “

We are informed that 9 hours in these yards is all that should be required for the average car under reasonable operating efficiency, whereas the average for Maybrook for the year ending June 30, 1922, given above is 13.4 hours, a period during which the railroad was unaffected by strike conditions or abnormal weather conditions. The Cedar Hill yard where the daily average for the year ending June 30, 1922, was 13.2 hours, and the Providence yard, where the delay to car movement averaged 14.8, also showed a slow movement.

The following diagrams illustrate the yard delays and line movements of the average car during the year ending June 30, 1922, delivered by a connecting line at Maybrook and bound for Mansfield or some other point east of Providence, and the movement of the same car with the delays at the three big classification yards reduced to reasonable operating figures:

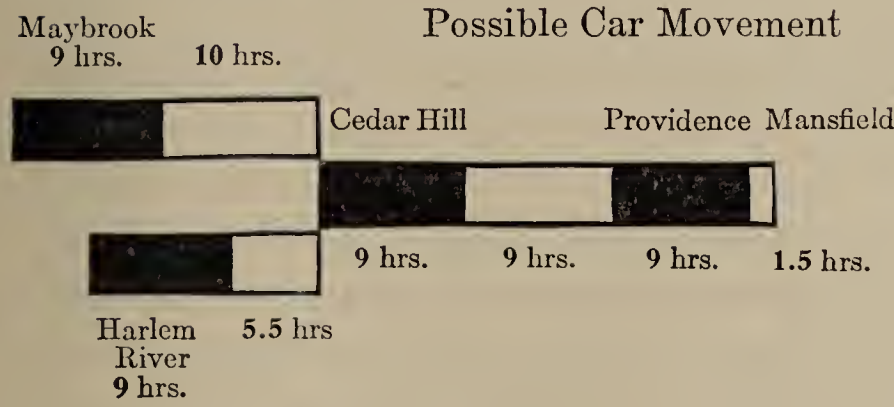
CAR MOVEMENT
MAYBROOK AND HARLEM RIVER TO MANSFIELD

Present Car Movement



Present total from Maybrook to Mansfield 62.1 hrs.
“ “ “ Harlem River “ “ 57.8 hrs.

Possible Car Movement



Possible total time from Maybrook to Mansfield 47.5 hrs.
“ “ “ “ Harlem River “ “ 43.0 hrs.

Respective Reductions in Delay 14.6 hrs. and 14.8 hrs.

We turn back to the classification carried on by the New Haven Railroad in its Harlem River yard. For the year ending June 30, 1922, the average time consumed in the yard was 13.6 hours; for the 6 months ending December 31, 1922, the average time consumed was 22.9.

COMPARISON WITH BOSTON & ALBANY

In the case of the Boston & Albany at its western end, cars moving to the Boston & Albany are classified by the New York Central in its West Albany yard.

The largest car classification carried on by the Boston & Albany is in the big yard at West Springfield. This yard does not have the benefit of a "hump" but the cars are switched onto the assembling tracks by repeated back and forth movements of switching locomotives as we commonly see them in operation. For the year ending June 30, 1922, the average daily number of cars classified in this yard was 1,220. The average time of cars in this yard was 6.1 hours, and for the 6 months ending December 31, 1922, the average daily number of cars handled was 1,205, and the average time 8.4 hours. These are excellent records and show a high degree of operating efficiency. The 6.1 hours maintained as the Boston & Albany average for the year ending June 30, 1922, also indicates that the nine hours allowed the New Haven in our previous statement was a reasonable and attainable figure. The average for 51 representative railroads of the United States was 8.43 hours.

COMPARISON WITH BOSTON AND MAINE

Taking up next the big “hump” yard at the western end of the Boston & Maine railroad at Mechanicville and the big Boston & Maine classification yard at East Deerfield, we find that the average daily number of cars classified and the time required was:

	Year ending June 30, 1922		6 Mos. ending Dec. 31, 1922	
	Cars	Hours	Cars	Hours
Mechanicville (East)	595	25.0	518	30.1
East Deerfield (both direc- tions)	1293	12.7	1136	17.3

We shall refer in more detail to these delays when we come to describe the operation of the Boston & Maine, but it will be noted that the time required at Mechanicville (25 hours for year ending June 30, 1922) showed much greater delay than in the case of the three hump yards of the New Haven during the same period. The time required at East Deerfield, 12.7 hours, was slightly better than for the New Haven yards but below the Boston & Albany’s average of 6.1 hours at West Springfield.

TIME LOST IN PLACING CARS

Another interesting comparison of operating efficiency is the time consumed by a railroad in actually “placing” or “spotting” a car after it has been brought in to the terminal yard. It shows how easy it is in railroad operation to spill time and therefore net money all along the right of way.

These figures have been obtained from the official published reports of the Demurrage Bureau at Boston

maintained by the New England railroads for the purpose of dealing with demurrage claims against shippers. The figures of course are the railroads' own figures furnished to the Demurrage Bureau.

Average Time Placing Cars

	1921	1922	Jan. 1923	Feb. 1923
	Hrs. Min.	Hrs. Min.	Hrs. Min.	Hrs. Min.
Bangor & Aroostook	2:53	2:38	3:22	3:22
Boston & Albany	4:19	4:19	8:10	6:14
Boston & Maine	7:55	7:55	17:02	14:53
Central Vermont	7:41	7:12	10:34	10:05
Maine Central	4:19	4:05	6:29	6:00
New Haven	6:43	7:55	17:02	15:50
Rutland	6:58	5:46	7:26	7:12

EMBARGOES

It is obvious that in time of business activity a railroad may accept from connecting lines so many cars that it will become clogged and unable efficiently to conduct its transportation. This point has been reached many times in railroad history, but such a surfeit should be headed off long before it is reached. If a railroad permits more cars to come upon its system than it can efficiently handle it not only injures or altogether destroys its earning power as the result of the rapidly accumulating car per diems, but it also does its patrons no good.

Railroad managers seek to guard against congestion by an embargo which in effect is notification to connecting railroads that they must cease permitting shippers on their lines to load cars for the home railroad. These embargoes are nearly always limited so as to permit shippers to continue loading certain kinds of freight

varying according to conditions; generally foodstuffs, perishables, fruits, newsprint paper, and a few other classes of merchandise. Here in New England during most of the recent embargoes coal was also made an exception.

The policy of the New Haven Railroad is to issue a sweeping embargo, and then the shipper applies to the railroad for permission to have a car loaded. The New Haven road undertakes to pass upon the merits of his application, and the many thousands of other applications received from other shippers. For example, a manufacturer at New Britain may apply for permission to have a car loaded with pig iron at a furnace on the Pennsylvania Railroad. He might admit in his application, or during a conversation in person or by telephone with the railroad official, that he had already some stock of pig iron at his plant and the official would probably refuse his application. This sounds better in theory than it works in practice. It puts a railroad official into a thousand kinds of business on his line. Each shipper presumably is best acquainted with his own business and his own needs. His only motive for seeking an opportunity to draw on his bank balance to pay some other man for raw material or merchandise is to promote the systematic and orderly running of his business and to care for his customers, or to keep his factory running smoothly. His judgment and experience tell him that the time has come to order another car load. To forbid him to do this represents a regrettable state of affairs where some railroad official substitutes his judgment for the judgment of the man eating and sleeping with his own business.

In actual operation it also gives rise to much inequality if not favoritism and unfairness. The railroad cannot send an employee to visit every manufacturer and count or weigh the merchandise on hand.

Whatever the system of embargo may be, however, whether a published embargo with certain exceptions made known to all and then opened and closed from time to time or a general embargo with an occult and inevitably inequitably administered permit system, there is no doubt that embargoes must at times be put into effect. It is a question of sound judgment as to when the day and the hour arrives to declare the embargo.

The best managed roads in the country, when the cars on their lines are nearing the congestion point, use the embargo to avoid the threatened overload. It may be necessary only for a day or two, or it may be longer.

It may be asked why not build enough main line tracks, sidings, yards and terminals and keep in storage enough extra locomotives to be ready to care for a traffic peak, even though it may come only once in four or five years, and then perhaps lasts only for three or four months. But to go too far in this direction is unsound. In the long run the cost of the railroads of the country falls upon the people who use them, and it is not in their interest any more than in the interest of the railroads to maintain idle, enormously expensive facilities for ninety or ninety-five per cent of the time in order to care for the extra peak load which shippers would like to put on the railroads for five or ten per cent of the time. Sound manufacturers do not

make a heavy extra investment in plant and subject themselves to the loss of interest, upkeep, taxes, etc., necessary to meet a short abnormal rush of orders.

But however this may be, the officers of the railroad charged with its successful operation this day and this week must deal with the situation as it exists today and this week. No single question involved in the successful operation of a railroad is fraught with greater consequence than the right day and the right hour for declaring an embargo and the degree of tightness with which it shall be enforced. The president of the road must have his hand either directly or through a trusted subordinate on the control lever. Once get his road jammed and it is extremely difficult to get it running smoothly again. Meanwhile no one is being benefited, and the credit of the road is being destroyed by the slow movement of cars and the piling up of adverse car per diems. The president must see the picture of his road not as it might, could, would or should be, but exactly as it is day by day. He must watch closely by the aid of daily reports the number of cars moving towards him on connecting lines, and particularly so because an embargo does not stop the cars already moving or loaded. The cars will keep moving up to his gateways in large number for ten days or a fortnight after the embargo is declared, and he must accept them and be responsible for the per diems involved. He must have in mind the condition of his main lines, the condition of his yards, of his unloading tracks, the condition of his motive power, the number of empties awaiting return, in winter the temperature and snow conditions, labor conditions, and any and all other con-

ditions affecting the actual daily capacity of his machine to produce ton miles.

EMBARGO POLICY OF NEW HAVEN RAILROAD

Turning now to the judgment exercised by the operating officials of the New Haven road during the last eighteen months on this vital question, we give for the months from January, 1922 to April, 1923, the car miles per freight car day and the total cars on the system:

	Daily Average Cars on Line	Car Miles Per Car Day	Number Bad Order Cars*
1922 — January ..	41,958	12.3	9,932
February .	43,260	13.6	10,539
March ...	44,305	14.9	10,921
April	43,077	13.0	11,272
May	42,430	13.2	11,584
June	43,092	13.9	11,637
July	43,342	12.8	11,442
August ...	44,326	12.3	11,241
September	47,228	12.0	11,151
October ..	53,314	11.5	10,856
November .	55,850	12.0	10,728
December .	53,586	9.7	10,080
1923 — January .	56,245	7.5	9,865
February .	59,279	7.7	9,341
March	61,253	9.0	9,014
April	57,782	11.3	8,689

It will be observed that upon the opening of easier spring conditions in March, 1922, the New Haven's average car movement per day was 14.9 miles, and that the cars on the road during this month amounted to

* The average number of bad order cars for each month is given to make clear that the falling off in car movement was not due to an increase in number of bad order cars. If they are taken into consideration the falling off in car movement would be further accentuated.

44,305. Then during the three following months of April, May and June the movement averaged over 13 miles a day, with about 43,000 cars on the line for each of these three months. Then came the strike of the shopmen on July 1, not affecting the efficiency of the engines much at first but bound to have a rapid cumulative effect as the need for repairs accumulated. In July the car miles per day dropped from the 13.9 miles of June to 12.8. Meanwhile the total cars on the line began to rise until by September first, they were in excess of 45,000 and car miles per car day dropped to 12.3 for August, 12 for September and 11.5 for October. A quick halt should have been called by some restriction of the cars coming on to the system, especially in view of the patent daily difficulties at the locomotive shops and engine roundhouses in breaking in an entire new repair force. Instead of this, cars on the line were allowed to go mounting up until by October first they had gone up another five thousand to about 50,000. Still no step was taken during the whole month of October, until the last day arrived when an embargo was announced. By this time the cars on the system had reached 54,000 and the road was in a jam with ten thousand too many cars on the system, many of its locomotives out of order altogether, and many others still running but in bad condition and winter approaching.

During December, the car miles per car day took a further drop to 9.7 though we think that December weather conditions were about normal for the season. So the history of the winter went until in January and February, the average car moved only about seven

and a half miles a day, a rate which would require two months for a car to travel from Maybrook to Boston and back.

The adverse car per diems on the New Haven advanced to ruinous figures as follows:

1922—May	\$399,133
June	429,631
July	478,663
August	531,594
September	641,141
October	901,780
November	1,015,010
December	970,617
1923—January	1,119,934
February	1,077,149
March	1,322,401
April	1,666,707

Now while we believe that a serious mistake was made in delaying the embargo until the 31st of October and permitting the number of cars on the line to run up from about 43,000 on July 1st to about 54,000 on November 1st, an even more regrettable mistake seems to us to have occurred after the declaration of the embargo of October 31st. Under the New Haven embargo plan the embargo of October 31st was a general embargo, but in spite of this declared embargo, permits began to be issued at such a rate that the road instead of being cleared of the excessive number of cars became worse and worse congested until in March, the average number on the system was 61,253, and the adverse per diems for the month \$1,322,400. It is true the winter turned out to be unusually adverse, but effi-

cient embargo control could have countered even the winter to a large extent. At any rate, conditions at the locomotive shops and roundhouse repair shops and the condition of the motive power were known and could have been given greater weight, in determining the embargo policy.

NEW HAVEN'S LARGE PER DIEM PAYMENTS

We give below the annual sum due for a series of years from the New Haven railroad to other roads for foreign car per diems: *

1913	.....\$3,102,931
1914	..... 2,585,302
1915	..... 2,588,717
1916	..... 5,400,479
1917	..... 5,835,795
1921	..... 4,386,363
1922	..... 5,805,879

We omit the years 1918, 1919 and 1920, as they should be disregarded owing to disturbed conditions during and following the war. During part of 1918 and 1919, under war conditions, car per diems were abolished as between railroads under Federal control. During 1920, cars had become so widely scattered as the result of the war time pooling that each line had a wholly abnormal percentage of foreign cars on its system, and but a small percentage of its own cars.

It may be urged that there should be offset against the amounts due each year from the New Haven to other roads the sums due to the New Haven for car per diems.

* Does not include payments by Central New England.

We give the figures for per diems receivable: *

1913	.....	\$3,461,679
1914	.....	2,666,342
1915	.....	1,865,401
1916	.....	3,143,530
1917	.....	3,945,226
1921	.....	3,638,418
1922	.....	3,768,902

This, however, is a fallacy. If the amount due other roads is excessive by reason of slow movement, it does not make it any less excessive because the other roads owe car hire to the New Haven. The car hire due the New Haven really represents nothing but a fair return after deducting upkeep and depreciation upon the capital which the New Haven has invested in car equipment. Any road, if it had the credit and the desire, could keep on purchasing cars until the amount due the road for car hire equalled or exceeded the amount it paid out, but this would not represent a saving in car hire paid out, it would merely represent a return upon a large additional investment of capital, and in discussing efficiency of operation should not be credited against car hire paid out.

It should be remembered also that if the number of car days piled up against the New Haven railroad for which it must pay other roads because of slow movement is excessive, there inevitably must be a further heavy loss not measured by this number of foreign car days or the sums due foreign roads. The New Haven's own cars, which in turn were worth to it as a mere investment at least a dollar a day, must have suffered from the same slow movement, and therefore caused a large deficiency in possible earnings.

* Does not include amounts received by Central New England.

NET TON MILES PER CAR DAY

Let us now examine the average number of freight ton miles "net ton miles," produced by the New Haven per car day during the year ending June 30, 1922. So far as the freight traffic of a railroad is concerned, this is all the railroad is in business for, viz., to produce the largest possible number of net ton miles per car per day. Good business judgment must of course be exercised to keep the right balance between cost of per diems and cost of train service (year ending June 30, 1922):

Boston & Albany	365
Atlantic & St. Lawrence	347
Central Vermont	268
Maine Central	264
Rutland	247
Boston & Maine	246
New Haven	198
Bangor & Aroostook	186

The operating figures of the Boston and Albany system show that each car during the twelve months ending June 30, 1922, produced on the average each day 365 net ton miles. For the same period each car on the Boston & Maine system produced 246 net ton miles. On the New Haven system, only 198 net ton miles per car day were produced. The year referred to does not include any part of the shopmen's strike; it does include three months of the coal strike. But the Boston & Maine and the Boston & Albany, as well as the New Haven, both carry a large quantity of coal. It may be said that the Boston & Albany is helped in

the production of its large number of net ton miles per car day because it has less branches than the New Haven, but the Boston & Maine has quite as large a percentage of branches as the New Haven. The Maine Central is also burdened with a heavy percentage of branches. Yet the Maine Central produced 264 net ton miles per car day during the same year. The Bangor & Aroostook railroad produced 186 net ton miles. This road also has a good deal of branch line mileage besides its main line, and is further handicapped by the fact that the potato crop in Aroostook County, which contributes a large element in its total traffic, is a seasonal crop and moreover requires, during most of the hauling period, special heater cars, which must be accumulated on the line before the crop begins to move, and besides have the disability of not being suitable to be thrown into other traffic if standing at a terminal or loading point and not needed for potato loading.

PASSENGER OPERATION

The discussion in this report of the New Haven's operation has been confined to the operation of its freight service for this branch of railroad operation presents the most difficult problems. Passenger operation is relatively simpler. The New Haven derives slightly more than half of its gross revenue (51 per cent) from carrying freight, which compares with 50 per cent for the Boston & Albany and 61 per cent for the Boston & Maine.

The relative importance of freight and passenger service is very nearly the same on the Boston & Al-

bany as on the New Haven but the proportion of passenger train miles to freight train miles is larger on both the New Haven and Boston & Maine because of their large volume of suburban commutation business. It is true, however, on all of these roads that the operation of freight service is affected by the necessity for keeping freight out of the way of a heavy passenger service, particularly within the suburban zones of Boston and New York.

Speaking generally, the New Haven's passenger service is well conducted although during the past winter it was necessarily much affected by the bad condition of motive power, resulting from the shop strike.

The New Haven is fortunate in its large volume of through passenger business at high rates. The New Haven financial and operating problem in large measure seems to be how to increase the profits to be derived from its freight traffic.

LOCOMOTIVE REPAIRS

We have made a comparison of the cost of locomotive repairs on the New Haven railroad. Many factors should be taken into account in comparing these costs. It is work done by the locomotive as measured in locomotive miles that wears out the parts and makes necessary repairs and replacements, though high speeds and heavy train loads are factors also. Switch engines have a wear and tear disproportionate to the locomotive miles produced so that the relative percentage of switching would to some degree affect a comparison between roads. The relative size of locomotives, commonly measured in drawbar pull or tractive power, is

also a factor of importance. The repair of heavy locomotives is more costly than the repair of light locomotives. The average age of locomotives also should be given consideration.

We give a table showing for each New England road the average number of locomotive miles per locomotive, the average cost of repairs per locomotive mile, the average tractive power per locomotive, the average age, and the average cost of repairs per locomotive. For comparative purposes we give these figures for the years 1921 and 1922, but as the New Haven and Boston & Maine were seriously affected by the shop strike in the last six months of 1922, we shall consider only the comparison for the year 1921.

Year Ending	Cost	Miles	Cost of	Tractive	Cost per	
	Per Locomo- tive Mile (Cents)	Per Loco- motive	Repairs Per Loco- motive	Power Per Locomo- tive (lbs)	50,000 lbs. Trac- tive Power	
Dec. 31, 1921						
New Haven—Electric	24.371	50,927	\$12,412	38,018	\$16,324	
New Haven—Steam	35.035	18,124	6,350	31,097	10,209	
Boston & Maine	30.674	20,535	6,300	27,715	11,366	
Maine Central	21.956	24,000	5,269	31,149	8,458	
Boston & Albany	23.520	28,369	6,672	36,240	9,206	
Bangor & Aroostook	24.236	19,599	4,750	25,674	9,250	
Central Vermont	26.471	25,713	6,806	27,454	12,397	
Rutland	18.191	24,364	4,432	32,046	6,914	
Year Ending						Aver.
Dec. 31, 1922						Age (Yrs.)
New Haven—Electric	18.859	52,493	9,900	38,851	12,741	12.9
New Haven—Steam	43.965	18,018	7,921	31,702	12,494	18.8
Boston & Maine	31.160	20,779	6,473	28,473	11,369	17.4
Maine Central	20.577	25,157	5,176	31,294	8,271	15.6
Boston & Albany	19.403	29,091	5,644	36,450	7,743	15.5
Bangor & Aroostook	20.801	21,627	4,498	25,617	8,745	19.0
Central Vermont	18.711	26,857	5,025	24,965	9,074	25.5
Rutland	17.273	25,540	4,411	32,046	6,883	18.2

Comparing the four large New England roads we find as measured in cost per locomotive mile, the New Haven cost of steam locomotive repairs in 1921 was 35 cents; the Boston & Maine 30.7 cents; the Boston & Albany 23.5 cents; and the Maine Central 22 cents. On the basis of cost per locomotive, which does not take into account either tractive power or the locomotive miles travelled, the Boston & Albany is highest, \$6,672 per locomotive; New Haven \$6,350; Boston & Maine \$6,300; and Maine Central \$5,269. It will be seen, however, that the Boston & Albany and Maine Central both get a much higher mileage out of their locomotives than the two larger roads. If the cost of repairs is stated on the basis of cost per 50,000 pounds tractive power, which takes into effect the relative size of the locomotives, the New Haven is lower than the Boston & Maine, but considerably higher than the Maine Central or Boston & Albany. The average tractive power of the New Haven's locomotives is greater than that of the Boston & Maine, practically the same as the Maine Central, and much below that of the Boston & Albany. The average age of the locomotives on the New Haven was 18.8 years in 1922, as compared with 17.4 years on the Boston & Maine; 15.6 years on the Maine Central; and 15.5 years on the Boston & Albany.

The difference in age of the locomotives on the New Haven, and the difference in operating conditions undoubtedly explain in part the spread between the New Haven's cost and that of the Maine Central and Boston & Albany, but the difference seems to indicate room for considerable improvement on the New Haven in reducing the cost of locomotive repairs. This is a large item

in the cost of railroad operation, locomotive repairs costing the New Haven for its steam locomotives \$7,841,916 in 1921, a year of dull business. If the New Haven could have reduced the cost of steam locomotive repairs in 1921 from 35 cents per mile to 30 cents, the saving would have amounted to \$1,126,889.

CONSTRUCTIVE MILEAGE

The figures reported by the New Haven railroad to the Interstate Commerce Commission for the calendar year 1922, show that the train employees actually ran 115,644,792 miles. These are "men miles"; that is, this is a sum obtained by taking the actual mileage travelled by each train employee during the calendar year 1922, and adding them together. But "Constructive" mileage is another element which must be taken into consideration in the operation of a railroad. If a freight engineer has a run of just one hundred miles and makes it in eight hours, at the average rate of $12\frac{1}{2}$ miles per hour, he is paid the standard day's pay, but if because of a short division or for some other reason he runs only 50 miles and does his day's work in 4 hours, he will be paid for 50 constructive miles and receive the same pay as the previous engineer who actually ran one hundred miles. It is not necessary to go into the intricacies of the many rules relating to the allowance of constructive mileage. Suffice it to say that while the total miles actually run during 1922 by train employees on the New Haven railroad was 115,644,792, the road under the rules relating to constructive mileage paid for an additional 42,954,502 constructive miles not actually run. The road paid for

37.14 per cent more miles than it actually received. Other things being equal, a train crew operating a local passenger train, because they do not attain the standard passenger distance, often must be paid for twice the distance they actually travel. This same thing would be true in regard to a local freight which keeps stopping to drop and pick up cars, and therefore cannot make the standard day's run. This general principle as applied to the pay of the men is necessary and fair. Unfortunately the distance from Harlem River to the big Cedar Hill classification yard of the New Haven system is only 68 miles, and this has been established as an engine run. Accordingly every engine crew and train crew that operate a freight train from Harlem River to the Cedar Hill yard actually deliver to the New Haven railroad 68 train miles, but the road must pay for 100; that is to say, it must pay for nearly 50 per cent more miles than it actually receives.

Each railroad management will strive to lay out its system so as to get as many runs of a hundred miles for its freight engines and crews as possible, but this in practice can never be wholly accomplished, and still less can it be accomplished on systems like the New Haven or the Boston & Maine and the Maine Central where there are many branches of irregular lengths. Sometimes the distance is such that a crew can be given a "turn around" run for the purpose of building up the distance to more nearly the hundred miles.

We call attention to this heavy constructive mileage on the New Haven railroad, but we do not make any criticism in regard to it because whether a saving can here be made can only be determined by the executive

officers of the road who are living with it day by day and year by year.

It might be thought that the constructive mileage given above was largely built up by the crews employed on switching engines, but this is not the case because their basis of pay is different. It might be thought that through freights could be operated with a minimum of constructive mileage but the figures given by the New Haven railroad for the actual mileage of the engine and train crews of through freights during 1922 amounted to a total of 26,610,378 miles. The road paid these men, in addition to these actual miles, for 10,822,275 constructive miles.

OVERTIME PAY

In addition to the heavy expense involved in adding to the miles actually run, 37 per cent more constructive mileage, the New Haven railroad paid for 2,304,772 hours of overtime in 1922. These overtime hours represent chiefly actual extra hours on the job beyond the standard day of 8 hours. In some cases they represent probably extra compensation for a "wide spread." As, for example, if a man works for 8 hours continuously, other things being equal, he receives 8 hours' pay. If he should work, however, from 8 to 12 in the morning and then from 6 to 10 in the evening, he has still worked a total of only 8 hours, but the spread of his day's work is more than 12 hours, and the inconvenience or hardship of this wide spread is compensated for by allowing "constructive overtime." The principle of overtime is fair and speaking generally, the road is actually receiving service during most of these overtime hours,

but overtime costs more than regular time, generally time and a half, and the skillful manager strives to keep the total hours of overtime requiring this 50 per cent bonus down as much as he can.

MATERIALS AND SUPPLIES

We have had a careful study made of the handling of materials and supplies on the various New England railroads, including the amount of inventory carried.

The inventory of materials and supplies on the New Haven for the past three years, with number of months the supply on hand would last, has been as follows:

	Dec. 31 1920	Months' Supply	Dec. 31 1921	Months' Supply	Dec. 31 1922	Months' Supply
Coal	\$2,151,251	1.2	\$2,815,377	2.1	\$1,344,122	1.0
Rails	803,927	9.4	253,286	4.5	570,817	8.9
Ties	742,882	5.3	788,234	2.8	1,139,332	5.4
Lumber	1,106,565	9.2	777,507	6.1	669,937	6.5
All other stores	12,072,718	11.6	9,684,685	10.9	8,409,042	8.9
<hr/>						
Total Inventory	\$16,877,343		\$14,319,089		\$12,133,250	

It is clear that in 1920, apart from coal, rails, ties and lumber, the balance of "all other stores" was quite out of hand. It represented practically a year's supply, and instead of having over twelve millions of the road's capital locked up it should not have amounted to more than six millions, which would have been six months' supply.

It is the opinion of experts on railroad supplies that excessive supplies cost on the average at least fifteen per cent a year, made up of interest, deterioration, obsolescence, storage facilities, taxes, insurance, extra handling and accounting, so that this excess of six mil-

lions represented an annual loss going on at the rate of \$900,000 per year. Happily the present head of the purchasing and stores department has been cutting this down rapidly, and we have little doubt that by the end of the current year he will have his inventory of "all other stores" down to seven millions, and then in the year following to six millions, which would represent an average six months' supply, and be good railroad practice. The Boston & Maine inventory of "all other stores" on December 31, 1922, was down to an average of six months, twenty-one days.

The present purchasing agent of the New Haven came to the road about two years ago, and the department appears to be now well organized and well conducted.

PHYSICAL CONDITION

The physical condition of the New Haven, in so far as roadbed, track, signals, bridges, ordinary buildings and other roadway structures is concerned may be considered to be excellent, capable of handling its high-speed passenger trains and heavy freights with economy and safety. In respect to the capacity of the roundhouses and their equipment, we consider many of them inadequate for the pressure of business put upon them in busy periods. This does not involve a large sum of money to be expended at any one time, but it is important that the work should be begun, because it is at the roundhouses that minor repairs (requiring less than 24 hours) are made and these should be made quickly so as to get the locomotives back at work in the minimum of time. The ability of the roundhouses to make some of the heavier repairs efficiently and

promptly instead of the main shops is also an important factor in keeping locomotives in service and reducing the cost of locomotive repairs.

DENSITY

Speaking of the system as a whole, all parts of it have main track and yard facilities, adequate for the present business and for from 25 to 50 per cent increase. The heaviest traffic, both passenger and freight, is between New Haven and Harlem River. From New Haven to New Rochelle there are four tracks, and from New Rochelle to Harlem River there are six tracks. These tracks are capable of carrying a considerably larger number of trains, probably 50 per cent in excess of the present number. From New Haven to Providence, where there are only two tracks most of the way, there is still unused capacity which, under efficient operation, could accommodate at least 50 per cent more trains. Between Maybrook and Devon, where the Maybrook line joins the main Shore Line, the tracks can carry at least 100 per cent more trains. Between New Haven and Springfield there exist ample track and facilities for carrying a heavier movement. Over the old New York and New England railroad, between Hartford and Boston, there are two tracks most of the way, but the traffic reaches only about the capacity of a single track line. It seems unnecessary to comment on other parts of the system.

FUTURE CAPITAL EXPENDITURES

As a policy in regard to further capital expenditures, we believe the New Haven should make no large capital

expenditures during the next few years except year by year a moderate sum to increase and improve the facilities at the roundhouses and main shop machinery, and no doubt here and there moderate amounts. It seems to us the active effort of the management should be concentrated in trying to use to the utmost advantage the things which it now possesses. The company, we are advised, with the new power now on order will have sufficient engine power to handle its present business if the engines are kept in good operating condition, and for quite a period of time capital outlay in this direction probably can be limited to the cost of replacing with heavier engines some of the smaller ones as they wear out.

The present excessive number of bad order freight cars, amounting to over eight thousand, should be reduced to the normal figure of, say, three thousand cars. So far as the rebuilt cars may be strengthened and have attached more modern draft gear and other improvements, this justifies a charge to capital account.

FINANCIAL CONDITION OF THE NEW HAVEN

PERIOD OF EXPANSION, 1902-1913

Beginning in the year 1902, the New Haven management inaugurated a policy of expansion with the evident purpose of obtaining control of most of the steam railroads in the New England states; control of trolley and interurban electric railway systems in southern New England and southeastern New York, parallel to or radiating from its own rail lines; and also control of various coastwise steamship lines as well as additional boat lines operating through Long Island Sound to New York.

Pursuant to that policy the New Haven acquired during the ten years between 1902 and 1913:

Steam Railroads

1. Control of Central New England Railway.
2. Control of the Boston & Maine Railroad which at the time carried control of the Maine Central Railroad.
3. One-half of a controlling interest in the Rutland Railroad with an agreement to buy the other half from the New York Central (subsequently enjoined by the New York Court and never carried into effect).
4. Agreement with the New York Central to share equally in the profits or losses of the Boston & Albany road. Agreement, made in 1911 and terminated early in 1914, resulting in a small loss to the New Haven, about \$168,000.

5. During the same period the New Haven acquired the control of the New York, Ontario & Western Railroad. This road is wholly in the states of New York and Pennsylvania.

Street Railways

1. Nearly all the street and interurban railways in the state of Rhode Island and in the state of Connecticut, and a large mileage in Massachusetts, including the Worcester System, the Springfield System and the Berkshire Street Railway System.
2. The two street railways operating through the suburban territory along the Sound in New York State (Westchester Street Railroad and New York & Stamford Railway).
3. The New York, Westchester and Boston Railway, financed by the New Haven, a rapid transit line from 129th St., New York, to New Rochelle and White Plains, connecting with the elevated and subway systems in New York.

Steamship Lines

Merchants & Miners Transportation Company.

Eastern Steamship Company.

Hartford & New York Transportation Company.

The above investments were for the most part acquired at high prices, representing in many cases, and particularly in the case of the trolley properties, a cost much in excess of physical values.

This policy of expansion outside its own railroad system practically terminated in the year 1913, except

as to the expenditures necessary to complete certain of the acquired properties.

The legal conflicts of the company with the United States Government and the State of Massachusetts, resulting from some of these transactions, are a matter of record and need not be dwelt on.

At the time this campaign of expansion was undertaken, trolley and interurban railway properties were in good credit, with increasing earnings, and were regarded by many as potential competitors of the steam railroads for passenger traffic. The Boston & Maine was then earning substantial dividends and the New York, Ontario & Western was paying sufficient dividends to carry the New Haven's investment in the stock.

The Committee believes that it would not be helpful or constructive to comment in this report on the policy of the former management in undertaking this expansion program. Nevertheless, no intelligent diagnosis of New Haven's financial problem can be made without taking into account the results of this expansion policy and the extent to which it has impaired the New Haven's financial resources.

AMOUNT OF INVESTMENT IN OUTSIDE PROPERTIES

The annual report of the New Haven Company to its stockholders for the year ending June 30, 1915, states that during the period from July 1, 1903, to June 30, 1915, there was acquired additional property with book values aggregating \$393,071,491.

Included in that total were the following outside investments:

Boston & Maine and leased line stocks.....	\$31,079,668.75
New York, Ontario & Western Railroad stock	13,108,397.62
Rutland Railroad securities.....	2,514,977.15

Total outside railroad investments.....\$46,703,043.52

New York, Westchester & Boston Railway	\$ 38,850,150.09
Various other trolley lines and securities	100,527,389.53 \$ 139,377,539.62

Various Steamship Lines 14,242,718.81

Total of above investments between July
1, 1903, and June 30, 1915..... \$ 200,323,301.95

Since June 30, 1915, there have been large further increases in the cost to the New Haven of some of these outside properties, because they have produced little income for the New Haven, and in some cases have received considerable further cash advances.

For a number of years after the New Haven made most of these outside investments the results of its own railroad operations, and the income received from its street railway and other outside properties, except the New York, Westchester & Boston, which was under construction, enabled it to maintain its credit and continue to pay 8 per cent dividends. But about 1913 began the decline in earnings of a large proportion of the street railway companies in the United States, due

to automobile and jitney competition, and especially to increases in wages and other costs, and inability to increase fares promptly. Then came the failure of the New York, Westchester & Boston Railway to fulfill the estimates that within two or three years after the opening of the line it would earn its fixed charges. That property up to 1915 represented a cost to the New Haven of over \$38,000,000, and during ten years of its operation it has not been able to earn in full even its operating expenses and taxes, the deficit before deducting fixed charges having been \$351,539, and the deficit after fixed charges including interest due the New Haven having been \$16,369,835. Last year (1922) it earned a small margin (about \$50,000) applicable to interest charges. The Boston & Maine was obliged to discontinue dividends on its common stock in 1913 and has paid none since. The New York, Ontario & Western has paid dividends in 12 of the 18 years of New Haven control. The Rutland Railroad has taken care of itself and gradually improved its property, but only two dividends of 2 per cent each have been paid since the New Haven's investment in the stock.

LOSSES OF NEW HAVEN ON OUTSIDE INVESTMENTS

The New Haven has written off its books a large amount of losses sustained through some of these investments. It has liquidated its holdings in the Rhode Island trolley properties and in the Eastern Steamship Company, New England Navigation Company and Merchants & Miners Transportation Company. The

loss on these four investments, already written off, amounts to \$40,546,840. This has been written off and is net. The New Haven has also charged to its income account a large amount of interest on guaranteed or assumed securities of these outside properties and has, in effect, written off considerable further losses by omitting to charge on its books interest on some of these outside investments that have failed to pay such interest.

The losses thus already written off by the New Haven, including the definite loss above of \$40,546,840, aggregate approximately \$53,000,000, divided as follows:

The Rhode Island Co. (Trolley properties in Rhode Island)...		\$29,729,656
Merchants & Miners Transportation Co.		3,594,500
New England Navigation Co.		6,275,809
Eastern Steamship Co.		946,875
New York, Westchester & Boston Ry.:		
Advances (written down)	\$9,983,899	
Discount on bonds sold	1,265,295	
Liquidation of Millbrook Co. .	1,163,084	12,412,278
		<hr/>
		\$52,959,118

Besides this amount already charged off, over three-fourths of which represents loss on the original investment already realized upon the sale or final liquidation of the assets disposed of, there is a present substantial shrinkage in the value of various important investment items still retained by the company.

These remaining "outside investments," after the above write-offs, were carried on the New Haven's books on December 31, 1922, at the following valuations:

Outside Steam Railroad Investments	
	Book Valuation
Boston Railroad Holding Company	\$26,350,400
This investment comprises the entire Common Stock (\$3,106,500 par value) and \$24,493,900 out of \$27,293,000 4 per cent Preferred Stock of the Holding Company. The remaining \$2,800,000 Preferred Stock is held outside and is guaranteed by the New Haven as to principal and dividends. The investments owned by the Holding Company consist of Boston & Maine securities as follows: Common Stock \$21,918,900 (par value), Preferred Stock \$654,300 (par value) and a \$1,000 4 per cent Bond.	
Boston & Maine First Preferred Stocks B, C, & D, par value \$415,100.....	816,544
Various Railroad Stocks and Securities (chiefly Boston & Maine leased lines) par value \$608,123	743,809
New York, Ontario & Western Stocks, \$29,162,200 par value or 50.2 per cent of total outstanding	13,108,397
Rutland Railroad Preferred Stock \$2,352,050 par value or 25.4 per cent of total outstanding	2,364,977
Total Outside Steam Railroad investments..	<u>\$43,384,127</u>

Street and Suburban Railway Properties

	Book Valuation
Connecticut Company (entire stock and certain securities owned, par value \$45,568,916).....	\$45,568,916
New York, Westchester & Boston Railway Company (entire capital stock and certain securities owned, par value \$22,670,342) ..	13,813,923
New England Investment & Secur- ity Company 5 per cent Notes due 1924 (par value \$13,115,000)....	13,037,750
(representing equity in Worces- ter Consolidated Street Railway and Springfield Street Railway, etc.)	
Berkshire Street Railway Co. (en- tire capital stock and certain securities owned, par value \$9,990,600)	9,931,156
Vermont Company (entire capital stock and certain securities owned, par value \$1,496,000)...	1,417,664
New York & Stamford Railway Company (entire capital stock and certain securities owned, par value \$1,396,432)	1,415,396
Westchester Street Railroad Com- pany (entire capital stock and certain securities owned, par value \$1,193,043)	1,398,609
Shore Line Electric Railway Co...	117,000
United Electric Railway Co.....	300,000
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Total Street and Suburban Rail- way properties	<hr/> \$87,000,414

Total outside steam railroad and street railway investments	\$130,384,541
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It has not seemed to the Committee useful or indeed possible to estimate what has been or may be the ultimate loss to the New Haven upon these other assets. Such estimates are at best unsatisfactory. That the losses will be heavy, if the investments should be disposed of in the near future, is beyond question. For the most part they are bringing in little if any income, while to the extent that they were acquired with the proceeds of New Haven bonds or notes their ownership represents a permanent fixed charge upon the company. Anyone interested may consider, for example, the book valuation of the New York, Westchester & Boston as of December 31, 1922, of \$13,813,923 (after already writing down \$12,412,278), consisting chiefly of stocks, notes and advances, held in the New Haven's treasury and representing, with the exception of \$2,190,000 of these bonds owned by the New Haven itself only an equity, subject to \$19,200,000 4½ per cent first mortgage bonds in the hands of the public, guaranteed principal and interest by the New Haven. These bonds are quoted on the New York Stock Exchange at about 42% of face value, and to this price the New Haven guaranty of course contributes something. How can the value of the stock and notes coming after these bonds be figured?

For the \$73,186,491 book value of December 31, 1922, of various trolley securities other than New York, Westchester and Boston still held by the New Haven, it seems impossible to suggest any basis for an intelligent estimate of present value. Apparently little income has been derived from them for several years.

It is clear that to the \$52,959,118 of capital already written off as lost there must be added a large sum, impossible at present to calculate, and that these past and probable future losses taken together constitute a most important factor in the New Haven's financial condition and credit position today.

AMOUNT OF INCREASE IN CAPITALIZATION DUE TO OUTSIDE INVESTMENTS

On December 31, 1922, the New Haven's outstanding capitalization was:

Funded Debt (including guaranteed bonds of Central New England Railway).....	\$317,239,595
Capital Stock (par value).....	157,117,500

Total	\$474,357,095
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If it had no investments in these outside steam railroad and street railway properties, which on that date amounted to	130,384,541
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The total capitalization on December 31, 1922, would then have been only about	343,972,554
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If the New Haven were not burdened with these outside investments and thus had total capital liabilities of only \$344,000,000 instead of \$474,357,095, the company would be in comfortable financial condition.

Our best estimate of what would have been the division of these \$344,000,000 capital liabilities between funded debt and stock is as follows:

Funded Debt	\$220,600,000
Capital Stock	123,400,000

	\$344,000,000
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It seems conservative to estimate that because of these outside investments there has been an increase probably of at least \$96,000,000 in the funded debt alone. We estimate that these outside investments cost the New Haven in interest charges alone at least \$3,840,000 for the year 1922, against which the New Haven received income of only about \$422,000 in that year.

THE GOVERNMENT LOANS

The company on December 31, 1922, owed the United States Government \$83,946,500,* carrying interest at 6%, and secured by collateral consisting of \$93,068,000 First and Refunding Mortgage 6% Bonds of the New Haven Railroad and, in addition, by other stocks and bonds owned by the New Haven.

It is evident from the above recitals that the financial condition of the New Haven Company would have been acute before this if the government had not loaned this \$83,946,500.* Further loans from the government since December 31, 1922, have brought this total up to \$88,646,500,* and \$3,400,000 additional have been authorized by the United States Treasury Department but not yet taken down by the company.

INCREASE IN PHYSICAL VALUATION DOES NOT HELP ROAD'S EARNING POWER

It is true, as the officers of the company urge, that the tentative valuation of the Interstate Commerce Commission, swelled by the gain in market value of

* This does not include \$1,186,800 Equipment Trust obligations held by the Director General of Railroads, and subject to resale.

the real estate, and by the increased cost of replacing at present prices road construction, bridges and other structures and equipment, may be said to have restored these losses, and may some day, somehow, receive recognition. But the writing up of book value does not extricate the road as a going concern from its present financial difficulty. If the terminals in Boston have doubled or trebled in value this does not reduce the cost of operating the Boston terminal or result in more net money to meet fixed charges. On the contrary, it involves higher taxes and therefore less money to meet fixed charges. It is akin in some respects to the situation in which a manufacturing plant finds itself with perhaps fifty acres of land which has become extremely valuable. The fact that the fifty acres have greatly increased in value does not help the manufacturer to turn out his product more cheaply or to meet the competition of another plant located upon fifty acres of land worth farm prices.

Rates in New England must keep step with rates elsewhere and especially with the rates of other competitive regions. If the New Haven Railroad attempts to substitute the enhanced valuation of its property for the \$53,000,000 capital lost and for the large losses not yet determined in its outside investments and to raise correspondingly its charges, the cost to traffic will be greater than can be borne. The industries on its system are likely to wither, and new industries to locate elsewhere. If a general country-wide raising of rates is put into effect by the National Government in order to recognize the rise in values, then New England can move up with the rest of the country and the security

EXHIBIT A

NEW YORK, NEW HAVEN & HARTFORD (INCLUDING CENTRAL NEW ENGLAND) CONDENSED INCOME ACCOUNT
1908 TO 1922

YEAR ENDING JUNE 30	1 RAILWAY OPERATING REVENUES	2 RAILWAY OPERATING EXPENSES	Percent Expenses to Revenues	3 RAILWAY NET OPERATING REVENUES	4 TAXES	5 UNCOLLEC- TIBLE RAILWAY REVENUES	6 HIRE OF FREIGHT CARS (Net)	7 OTHER EQUIPMENT RENTS (Net)	8 JOINT FACILITY RENTS (Net)	9 TOTAL TAXES AND RENTS (Cols. 4 to 8)	10 NET RAIL- WAY OPERAT- ING INCOME	Percent Column 10 to Column 1	11 Non- OPERATING INCOME	12 GOVERNMENT GUARANTEE ADJUSTED	13 TOTAL INCOME AVAILABLE FOR FIXED CHARGES (Cols. 10, 11, 12)	14 RENT FOR LEASED ROADS	15 INTEREST ON DEBT	16 OTHER DEDUCTIONS	17 TOTAL FIXED CHARGES (Cols. 14, 15, 16)	18 NET INCOME APPLICABLE TO DIVIDENDS (Cols. 13 to 17)	19 DIVIDENDS PAID	20 BALANCE OF INCOME	YEAR ENDING JUNE 30		
1908	\$56,992,162	\$40,539,866	71.13	\$16,452,296	\$3,406,055	.....	\$740,462 E	Note E	\$1,445,425	\$5,591,942	\$10,860,354	19.06	\$7,659,525	.....	\$18,519,879	4,673,005	\$7,733,546	\$348,689	\$12,755,240	\$5,764,639	\$3,279,046	\$2,514,407	1908
1909	58,900,937	38,488,276	65.34	20,412,661	3,523,143	.....	514,570	\$41,529	1,789,701	5,868,943	14,543,718	24.69	9,120,956	.....	23,664,674	4,890,297	11,001,238	222,845	16,114,380	7,550,294	7,883,842	\$33,548	1909
1910	65,939,695	41,337,285	62.69	24,602,410	4,088,252	.....	205,102	101,184	1,477,456	5,669,626	18,932,784	28.71	9,037,467	.....	27,970,251	5,225,571	11,295,657	237,268	16,758,496	11,211,755	9,759,081	1,452,674	1910
1911	67,677,518	43,704,838	64.58	23,972,680	3,744,217	.....	200,356	78,560	1,634,321	5,099,622	18,873,058	27.89	8,805,606	.....	27,678,664	4,570,164	11,324,866	243,902	16,138,932	11,539,732	12,454,852	915,120	1911
1912	70,833,980	44,919,702	63.42	25,914,278	3,910,610	.....	204,160	92,339	1,927,046	5,541,157	20,373,121	28.76	9,701,140 G	.....	30,074,261	4,597,840	11,008,905	268,280 G	15,875,025	14,199,236	14,315,540	116,304	1912
1913	73,930,320	50,159,367	67.85	23,770,953	3,839,270	.....	102,784 B	13,162 B	2,153,994	5,877,318	17,893,635	24.20	9,352,578 G	.....	27,246,213	4,678,623	11,525,896	1,205,040 G	17,409,559	9,836,654	13,486,563	3,649,909	1913
1914	70,998,422	51,565,237	72.63	19,433,185	3,695,023	.....	174,512 B	269,343 B	2,394,212	5,994,390	13,438,786	18.93	5,957,761 H	.....	19,396,547	4,890,538	12,393,888	1,613,437 H	18,897,863	498,684	2,506,657 C	2,007,973	1914
1915	69,434,310	46,700,638	67.26	22,733,672	2,883,162	\$7,866	384,600	152,679	2,598,939	6,027,246	16,706,426	24.06	4,080,571 F H	.....	20,786,997	5,083,493 F	11,696,471	1,289,772 H	18,069,736	2,717,261	320,826 D	2,396,435	1915	
1916	81,182,586	53,715,864	66.17	27,466,722	3,024,697	5,961	2,513,191	306,152	2,739,904	8,589,905	18,876,817	23.25	4,712,518 F	.....	23,589,335	5,008,812 F	11,858,696	1,427,655	18,295,163	5,294,172	320,808 D	4,973,364	1916	
YEAR ENDING DEC. 31																								YEAR ENDING DEC. 31	
1916 (6 mos.)	44,756,488	29,003,333	64.80	15,753,155	1,673,000	2,493	1,120,966	238,626	1,409,426	4,444,511	11,308,644	25.27	2,642,226 F	.....	13,950,870	2,501,737 F	5,595,223	703,918	8,800,878	5,149,992	149,876 D	5,000,116	1916 (6 mos.)	
1917	91,262,181	65,588,548	71.87	25,673,633	3,557,566	6,317	2,433,346	341,714	3,000,874	9,339,817	16,333,816	17.90	5,297,889 F	.....	21,631,705	5,008,955 F	12,473,776	1,507,068	18,989,799	2,641,906	256,398 D	2,385,508	1917	
1918	A 108,357,368	93,257,298	86.06	15,100,070	3,496,526	16,271	1,073,649	74,988	3,209,344	7,720,802	7,379,268 A	6.81	4,381,600 F	\$9,675,543 I	21,436,411	5,032,923 F	13,321,634	1,647,810	20,002,367	1,434,044	.....	1,434,044	1918	
1919	A 113,302,528	99,027,570	87.40	14,274,958	4,298,833	28,946	614,680	7,838	3,498,535	8,448,832	5,826,126 A	5.14	5,502,786 F	8,820,556 I	20,149,468	5,056,983 F	13,750,613	1,626,582	20,434,178	234,710	640,684 D	925,394	1919		
1920	A 131,330,785	134,744,057	102.60	3,413,272	4,736,792	17,131	2,738,904	37,121	3,698,718	11,154,424	14,567,696 A	Def.	4,866,920 F	26,315,477 I	16,614,701	5,054,281 F	14,099,816	1,737,330	20,891,427	4,276,726	.....	4,276,726	1920	
1921	124,788,023	112,424,782	90.09	12,363,241	4,739,943	47,141	1,677,576	290,185	4,151,400	10,325,875	2,037,366	1.63	6,859,543 F	.....	8,896,909	5,056,026 F	15,473,874	1,970,663	22,500,563	13,603,654	.....	13,603,654	1921
1922	130,037,392	105,206,092	80.90	24,831,300	4,874,487	30,840	2,880,235	108,588	4,111,110	12,005,260	12,826,040	9.86	5,474,090 F	.....	18,300,130	5,055,717 F	16,408,228	1,825,642	23,289,587	4,989,457	320,322 D	5,309,779	1922	
-Italics indicate Deficit						-Italics indicate Credit						-Italics indicate Deficit						-Italics indicate Deficit						-Italics indicate Deficit	

- A — Federal and Corporate Accounts combined for columns 1 to 10.
B — Estimated for Central New England.
C — Includes Central New England dividend of \$149,888 over 99% of which is included in Non-Operating Income.
D — Central New England dividend over 99% of which is included in Non-Operating Income.
E — Separation of equipment rents between Hire of Freight Cars and Other Equipment Rents not reported for 1908 Net total of equipment rents is shown under Hire of Freight Cars.
F — Excludes from Non-Operating Income annual rental from Connecticut Company account lease of Connecticut Railway and Lighting Co., and same amount from Rent for Leased Roads.
G — Guarantee account Boston Railroad Holding Co. dividend eliminated from Other Deductions and same amount deducted from Non-Operating Income, leaving net income from this stock in Non-Operating Income.

- H — Dividend from Boston Railroad Holding Co. stock eliminated from Non-Operating Income and same amount deducted from Other Deductions, leaving net loss from this stock in Other Deductions.
I — Government Guarantee Adjusted represents the difference between the Net Railway Operating Income guaranteed by the Government and the Net Railway Operating Income earned by the United States Railroad Administration during Federal control and by the corporation during the Guaranty Period after adjustment for Revenues and Expenses prior to January 1, 1918.

holders and especially the stockholders of the New Haven Railroad may reap a substantial benefit.

To a certain extent the relative price paid for transportation by different sections or communities is more important than the actual price.

EARNINGS

A study of the Income Account of the New Haven Company (including the Central New England) for each of the 15½ years from June 30, 1907, to December 31, 1922, is given in Exhibit A on the opposite page. This statement shows that the company's net revenue from railroad operations (column 10) as well as its income over fixed charges (column 18) reached the peak in the year ending June 30, 1912. It should also be observed that the years 1918, 1919 and 1920 include the period of government control and government guaranties, and are therefore not properly comparable with other years.

GROWTH OF TRAFFIC

The volume of traffic on the New Haven has shown a steady growth in both freight and passenger business. In 1921 and 1922 there was a falling off from the war time peak of 1918 and 1919, but this decline was general on all the railroads of the country. Revenue ton miles in 1922 were 17% higher than in 1912 and passenger miles 18.1% greater.*

* Appendix H. Revenue Ton Miles and Passenger Miles. New Haven Railroad 1903-1922 (chart), and Appendix I. Volume of Freight and Passenger Traffic, Revenues, and Rates. New Haven Railroad 1912-1922.

COMPARISON OF YEARS 1922 AND 1912

The following comparison of Income Accounts of the New Haven (including Central New England) for the year ending June 30, 1912, with the year 1922 gives a significant picture of the financial decline of the New Haven Company, and indicates some of the reasons for that decline.

	Year Ending June 30, 1912	Year Ending Dec. 31, 1922	Increase	Decrease
Railway Operating Revenue	\$70,833,980	\$130,037,392	\$59,203,412	
Railway Operating Expenses	44,919,702	105,206,092	60,286,390	
<hr/>				
Railway Net Operating Revenues	\$25,914,278	\$24,831,300		\$1,082,978
<hr/>				
Taxes and Rents				
Taxes	3,910,610	4,874,487	963,877	
Equipment rentals (net) ...	296,499	cr. 2,988,823	dr. 3,285,322	
Joint Facility Rents (net)	1,927,046	4,111,110	2,184,064	
Uncollectible Railway Revenues .....	.....	30,840	30,840	
<hr/>				
Total Taxes and Rents	5,541,157	12,005,260	6,464,103	
<hr/>				
Net Railway Operating Income	20,373,121	12,826,040		7,547,081
Non-operating Income (net)	9,701,140 A	5,474,090 B		4,227,050
<hr/>				
Total Income Applicable to Fixed Charges	30,074,261	18,300,130		11,774,131
<hr/>				
Fixed Charges				
Rentals of Leased Roads..	4,597,840	5,055,717 B	457,877	
Interest on Debt	11,008,905	16,408,228	5,399,323	
Other Deductions (Guaranties, etc.)	268,280 A	1,825,642 B	1,557,362	
<hr/>				
Total Fixed Charges ..	15,875,025	23,289,587	7,414,562	
<hr/>				
Net Income Applicable to Dividends	14,199,236	4,989,457 Def.		19,188,693
Dividends paid	14,315,540	320,322 C		13,995,218
<hr/>				
Balance of Income	116,304	Def. 5,309,779 Def.		5,193,475

- A — Excludes \$148,741 from Non-Operating Income and Other Deductions in 1912 in connection with operations of Boston Railroad Holding Co., leaving \$818,943. net dividends from this property in Non-Operating Income.
- B — Excludes \$1,049,564 from Non-Operating Income and also from Rentals of Leased Roads, representing annual rental from the Connecticut Co. account lease of Connecticut Railway and Lighting Company.
- C — Central New England Dividends paid to New Haven and included in its Miscellaneous Income.

During the 10-year period covered by the above statement a net profit of \$14,199,236 (before dividends) in 1912 was changed to a net deficit of \$5,309,779 in 1922, representing a decrease in net income of \$19,509,015.

Attention is especially directed to the following items:

1. Increase in cost of rental of equipment	\$3,285,322
2. Decrease in Non-operating Income chiefly due to cessation of revenue from outside investments (trolley properties, steamship properties, Boston & Maine stock, New York, Ontario & Western stock, etc.)	4,227,050
3. Increase in Guaranties, etc. (chiefly New York, Westchester & Boston guaranty and other losses through guaranties)	1,557,362
4. Increase in taxes	963,877

A total of \$10,033,611

The decrease in non-operating income (Item 2) is due chiefly to the collapse in earnings from investments in outside trolley and steamship properties, and in the Boston & Maine Railroad, which occurred in the years 1913 and 1914.

The increase in charges for guarantees of securities

of outside companies (Item 3) is largely due to the investment in the New York, Westchester & Boston.

Had it not been for the above items of loss in net revenue (resulting from increased cost of equipment rental, decrease in income from outside investments, and increase in guarantees), the company would have shown last year a surplus of about \$3,760,000 over fixed charges instead of a deficit of \$5,309,779.

But the losses from the above causes are only a part of the picture. The increase in annual interest charges in the year 1922, as compared with 1912, was \$5,399,323 of which approximately \$3,500,000 or two-thirds was due to an increase in debt and about \$1,900,000 was due to an increase in the average rate of interest paid. The increase in debt was as follows:

Funded and Floating Debt	
June 30, 1912	\$248,909,846
December 31, 1922	317,239,595
Increase	<hr/> \$68,329,749

This increase in debt was to pay for additions and improvements to the road and equipment during the ten years.

In spite of the large amount invested in its operated railroad properties during the last ten and one-half years, the company showed an actual decrease of \$1,082,978 in railway net operating revenue * in 1922 as compared with 1912.

* Before charging taxes, rental of equipment, and joint facility rents.

COMPARATIVE EXPENSE RATIOS 1908-1922

The following statement shows the ratios of expenses to total railway operating revenue each year from 1908-1922 inclusive:

Year ending June 30	OPERATING EXPENSES					Total Operating Expenses Taxes and Rents	Total Operating Expenses Taxes and Rents
	Way & Struc- tures	Equip- ment	Total Mainte- nance	Transpor- tation Ex- penses	Other Ex- penses		
1908	11.33	12.65	23.98	43.01	4.14	71.13	80.96
1909	11.14	10.45	21.59	39.64	4.11	65.34	75.30
1910	11.59	10.21	21.80	36.14	4.74	62.68	71.28
1911	11.22	11.03	22.25	37.63	4.70	64.58	72.11
1912	10.35	11.74	22.09	36.87	4.46	63.42	71.24
1913	11.43	13.46	24.89	38.14	4.82	67.85	75.80
1914	13.26	15.29	28.55	39.81	4.27	72.63	81.07
1915	12.29	14.66	26.95	36.39	3.92	67.26	75.94
1916	11.42	13.91	25.33	37.04	3.80	66.17	76.75
Year ending Dec. 31							
1917	10.92	13.95	24.87	42.05	4.95	71.87	82.10
1918	13.56	20.28	33.84	47.08	5.04	85.96	93.00
1919	13.97	20.04	34.01	47.85	5.18	87.04	94.22
1920	17.24	24.52	41.76	54.90	5.94	102.60	111.09
1921	15.18	22.95	38.13	46.27	5.69	90.09	98.37
1922	13.76	21.15	34.91	41.23	4.77	80.91	90.14

RESULTS FOR FIRST FOUR MONTHS OF CURRENT YEAR

	4 mos. 1922	4 mos. 1923	Increase	Decrease
Railway Operating Revenue....	\$39,704,059	\$44,220,448	\$4,516,389	
Railway Operating Expenses...	30,763,024	37,486,093	6,723,069	
Ratio of Expenses to Revenues .	77.48	84.77	7.29	
<hr/>				
Railway Net Operating Revenues	\$8,941,035	\$6,734,355		\$2,206,680
<hr/>				
Taxes and Rents				
Taxes.....	1,632,067	1,722,792	\$90,725	
Rental of Equipment (net).....	550,130	2,913,967	2,363,837	
Joint Facility Rents.....	1,325,340	1,370,105	44,765	
Uncollectible Railway Revenues,	6,786	46,974	40,188	
<hr/>				
Total Taxes and Rents.....	\$3,514,323	\$6,053,838	\$2,539,515	
<hr/>				
Net Railway Operating Income.	\$5,426,712	\$680,517		\$4,746,195
Non-operating Income (net)* ..	1,903,000	2,035,000	132,000	
<hr/>				
Total Income Applicable to Fixed Charges.....	\$7,329,712	\$2,715,517		\$4,614,195
Fixed Charges *.....	7,703,000	7,715,000	\$12,000	
<hr/>				
Net Income (deficit).....	\$373,288	\$4,999,483		\$4,626,145

* Excludes \$350,000.00, being one-third of annual rental on account of lease of Connecticut Railway and Lighting Co.

There was an increase of \$3,438,443 in expenses for Maintenance of Equipment, caused by the necessity for heavy repairs to cars and locomotives. (Bad order freight cars were reduced by about 1,100 during the four months.) Further large increases in Maintenance of Equipment will be required before the freight cars and locomotives are brought into good operating condition.

The increase of \$2,363,837 in rental of equipment was due, in part, to the large number of unserviceable cars on the road and in part to the fact that the road was still flooded with foreign cars that it was unable to move promptly,—because the number of freight cars on its line exceeded its capacity for prompt movement.

It will be seen that the above two causes alone more than account for the increase of \$4,626,000 in the deficit for the four months.

POOR OUTLOOK FOR 1923

The management has estimated that the calendar year 1923 will show about the same deficit as in 1922. In order to fulfill this estimate the company will have to earn in the last eight months of 1923 nearly \$5,000,000 net more than it earned in the same eight months of 1922. In view of existing conditions as regards car per diem costs and the necessity for further large increases in costs of repairs and renewals of equipment, it seems almost inevitable that the year 1923 will show a considerable deficit.

It is evident, therefore, that with the present rates

and volume of traffic the New Haven cannot reasonably hope to show any surplus over fixed charges unless and until a radical improvement occurs in its per diem costs and in its costs of maintenance; and even if and when those two handicaps are removed, we believe there is little hope that the company can show for many years to come a margin of earnings sufficient to restore its credit unless a reduction can be made in its fixed charges or unless a considerable increase can be obtained in its division of freight rates with connecting lines, or other important sources of increased revenue can be developed.

EARLY MATURITIES OF NEW HAVEN DEBT

The New Haven must pay or refund the following indebtedness during the next 12 years:

Year	Name of Security	Interest Rate	Principal Amount
1924	Meriden Horse Railroad Co., Cons. mtg.	5%	\$415,000
	New Haven Station debenture	5%	100,000
	Hartford, Manchester & Rockville Tramway Co., first mtg.	5%	200,000
	*Equipment Trust certificates	Various	1,531,900
	Real Estate mortgages	6%	160,000
	U. S. Government loan (Treasury)	6%	100,000
Total in 1924			\$2,506,900
1925	European loan of 1907 (extended)	7%	24,431,251
	*Equipment Trust certificates	Various	1,434,900
	Danbury & Norwalk general mtg.	5%	150,000
	Pawtuxet Valley Railway 1st mtg.	4%	160,000
	U. S. Government loan (Director General of Railroads)	6%	4,290,000
	U. S. Government loan (Treasury)	6%	100,000
Total in 1925			\$30,566,151

* Includes \$98,900 due U. S. Government (Director General).

Year	Name of Security	Interest Rate	Principal Amount	
1926	*Equipment Trust certificates	Various	\$1,189,900	
	U. S. Government loan (Treasury)	6%	100,000	
	Total in 1926			\$1,289,900
1927	*Equipment Trust certificates	Various	\$939,900	
	U. S. Government loan (Treasury)	6%	100,000	
	Total in 1927			\$1,039,900
1928	*Equipment Trust certificates	Various	763,900	
	Meriden Southington & Compounce			
	Tramway 1st mtg.	5%	175,000	
	U. S. Government loan (Treasury)	6%	100,000	
	Total in 1928			\$1,038,900
1929	*Equipment Trust certificates	Various	592,900	
	U. S. Government loan (Treasury)	6%	100,000	
	Total in 1929			\$692,900
1930	*Equipment Trust certificates	Various	426,900	
	Hartford Street Railway 1st mtg.	4%	2,500,000	
	Hartford Street Railway Debentures ..	4%	165,000	
	Consolidated Railway Debentures 3, 3½ & 4%		969,650	
	Naugatuck Railroad	3½%	234,000	
	U. S. Government loan (Director General of Railroads)	6%	60,026,500	
	U. S. Government loan (Treasury)	6%	100,000	
	Total in 1930			\$64,422,050
1931	*Equipment Trust certificates	Various	\$426,900	
	Greenwich Tramway, 1st mtg.	5%	320,000	
	U. S. Government loan (Treasury)	6%	8,160,000	
	Total in 1931			\$8,906,900
1932	*Equipment Trust certificates	Various	\$426,900	
	U. S. Government loan (Treasury)	6%	2,560,000	
	Total in 1932			\$2,986,900
1933	*Equipment Trust certificates	Various	\$426,900	
	New Haven & Centerville Street Railway	5%	283,000	
	U. S. Government loan (Treasury)	6%	4,360,000	
	Total in 1933			\$5,069,900

* Includes \$98,900 due U. S. Government (Director General).

Year	Name of Security	Interest Rate	Principal Amount
1934	*Equipment Trust certificates	Various	\$426,900
	U. S. Government loan (Treasury)	6%	160,000
Total in 1934			\$586,900
1935	*Equipment Trust certificates	Various	\$426,900
	U. S. Government loan (Treasury)	6%	8,290,000
Total in 1935			\$8,716,900
Total 12 years — 1924 to 1935, inclusive			\$127,824,201
*Includes \$98,900 due U. S. Government (Director General).			

It will be noted that during the two years, 1924 and 1925 alone, there will mature \$33,073,051 of debt. Of this amount \$4,490,000 are maturing obligations to the U. S. Government and \$28,583,051 are obligations due others.

In addition the Company will have to make arrangements to pay off or refund, during the next 12 years, \$12,819,505 obligations of leased lines and subsidiary corporations (including trolley properties). Of this \$12,819,505, \$8,598,000 are Old Colony R.R. 4% bonds maturing in 1924 and 1925.

RESTORATION OF NEW HAVEN'S CREDIT IMPERATIVE

It is evident that the financial credit of the New Haven must be restored within the next 18 months (or before the year 1925) in order to put it in a position to borrow money at reasonable rates to take care of \$33,000,000 of debt maturing within the years 1924 and 1925.

BOSTON & MAINE RAILROAD

GENERAL DESCRIPTION

The Boston & Maine system comprises 2,515 miles (Map 8). It has 1,819 passenger cars, 20,546 freight cars and 1,134 locomotives. It produced during the year 1922, 863,856,000 passenger miles and 2,801,938,000 revenue ton miles. Of the passenger cars 43 are steel, 679 are steel underframe and 1,097 wooden. The Boston & Maine has been gradually evolved from the consolidation of 160 or more small roads. The last important consolidation was the lease in 1901 of the Fitchburg railroad. In 1919 in connection with the receivership, the Fitchburg Railroad, Boston & Lowell, Connecticut River, and Concord & Montreal became an integral part of the system by the exchange of the Boston & Maine first preferred stock for the guaranteed stocks of these roads. Since 1901, the system as an operating unit has comprised substantially the present mileage.

The main line of the Fitchburg extends from Boston to Mechanicville, New York, a distance of 187 miles, where it connects with the Delaware & Hudson. Here the company's big western classification yard is located. It then has an extension west for 22 miles to Rotterdam Junction where it connects with the main lines of the New York Central and West Shore in the Mohawk Valley. In addition it has an extension from Johnsonville to Troy, a distance of 16 miles, the distance from Boston to Troy being 190 miles. The Boston & Maine,

like the Boston & Albany, has two heavy grades, though less in altitude by 130 and 220 feet respectively. The distance from Boston to the Hudson River is 13 miles less than by the Boston & Albany. The line carries a very heavy freight traffic, but practically no through passenger business, these trains having been taken off during Federal management, though a through sleeper to Buffalo has just been restored.

The system has two important lines running from Boston to Portland, the old Boston & Maine line and the old Eastern, carrying quite a heavy passenger traffic, especially during the summer, and also considerable freight. An important line extends north from Boston through Lowell to Concord, New Hampshire, from where the line continuing north for 197 miles reaches a connection with the Canadian Pacific at Newport, Vermont. From this line at Concord a branch running northwest reaches the Connecticut Valley at White River Junction, where it connects with the Central Vermont, part of the Grand Trunk system. The Boston and Maine has other lines of lesser importance and numerous branches. It serves the northern half of Massachusetts, practically the entire State of New Hampshire, sections of Vermont, and is the only outlet for the State of Maine except via the Grand Trunk or Canadian Pacific through Canada.

PHYSICAL CONDITION

In general the road is in fair physical condition, adequate for the traffic offered. It is obvious outlay must bear some relation to traffic. A branch line, for

example, with traffic inadequate to pay operating expenses must be accorded the minimum outlay of capital and only enough upkeep to secure safety.

A substantial handicap is found in the light bridges on the Fitchburg Division, east of the Connecticut, which are not stout enough to carry the heavy Santa Fe engines used west of the Connecticut. They can be strengthened for about \$125,000, completely renewed for \$500,000.

The line from Concord, connecting with the Central Vermont at White River Junction, should have the bridges strengthened to carry more powerful locomotives, and the passing tracks should be lengthened to care for longer trains. Probably \$700,000 ought to be expended on this line. At the present time the road, we understand, has under order ten Santa Fe engines, and when the bridges on the Fitchburg Division, east of the Connecticut River, have been strengthened some of the consolidation engines, now in use on the Fitchburg Division, can replace the light engines now in service between Concord and White River Junction.

The limited dimensions of the Hoosac Tunnel prevent hauling through it the largest furniture and automobile cars. This is not of great consequence at present, but will be the cause of increasing embarrassment. More third track on the heavy grades of the Fitchburg Division would assist in the movement of freight trains, but it can be put in gradually from year to year.

A large number of wooden passenger cars should be replaced with steel as soon as possible. This will involve a substantial outlay as steel passenger cars at

present prices cost from twenty to twenty-five thousand dollars per car.

BOSTON FREIGHT TERMINALS

The present Boston freight terminals are inadequate and expensive to operate. They consist of the four small freight yards of the old Boston & Maine, Eastern, Boston & Lowell and Fitchburg railroads. It is important that a modern unified yard should be created as soon as possible in the interest of economy and good service. This would involve probably several million dollars. Apparently, the purchase of little new land would be required. The Grand Junction Railway, running from Cottage Farm around the northerly side of the city to East Boston and belonging to the Boston & Albany railroad, cuts across the Boston & Maine yards and hampers efficient operation. These tracks probably should be elevated.

SHOPS AND ROUNDHOUSES

The company has large and comparatively new locomotive and car shops at Billerica. The lesser shops on the line require only gradual strengthening from year to year. The big engine roundhouses and attendant repair facilities at Mechanicville, East Deerfield and Concord, N.H., are well adapted to the needs of the road. The Boston roundhouse facilities are inadequate and should be taken in hand as soon as possible.

Apart from the new steel passenger cars and the antiquated Boston freight terminals, the Boston & Maine requires only a limited amount of immediate

capital expenditure to put the system into reasonable condition to care for its present traffic.

OPERATION

We have already referred in our discussion of the New Haven to various operating factors of the Boston & Maine.

CAR MILES PER CAR DAY

We give again for the purpose of studying the performance of the Boston & Maine the average freight car miles per day for the year ending June 30, 1922, for all the New England roads, for all cars, and in a parallel column for serviceable cars (bad order cars excluded).

	Average Car Miles	
	Average Car Miles Per Freight Car Day	
	Per Freight Car Day (all cars)	(Bad Order Cars Excluded)
Boston & Albany	27.8	30.0
Atlantic & St. Lawrence	21.8	23.3
Central Vermont	19.3	29.5
Maine Central	17.8	21.2
Rutland	17.7	23.6
Boston & Maine	17.1	21.2
Bangor & Aroostook	13.8	19.3
New Haven	13.6	18.1

The Boston & Maine, although much below the Boston & Albany, exceeded the New Haven's performance, but we believe that there is room for improvement, especially in the movement of cars in its classification yards.

CAR DELAYS IN YARDS AT MECHANICVILLE, ROTTERDAM
JUNCTION, EAST DEERFIELD AND AYER

The lack of prompt despatch of cars at the Rotterdam Junction, Mechanicville, East Deerfield and Ayer Yards seems to us quite unreasonable. At Mechanicville, a large modern "hump" classification yard was installed while the Boston & Maine was under the active control of the New Haven railroad. This yard corresponds to the Maybrook hump yard at the western end of the New Haven system. The average daily number of cars classified at Mechanicville is 595 eastbound. Practically none of the cars westbound are classified. For the year ending June 30, 1922, the daily average delay for an eastbound car classified at Mechanicville was 25 hours. This is a poorer showing than the daily average at the three big hump yards of the New Haven system:—

	Year Ending June 30, 1922
Mechanicville	25.1 hours
Maybrook	13.4 "
New Haven (Cedar Hill) ..	13.2 "
Providence	14.8 "

For the six months ending December 31, 1922, the daily average delay at Mechanicville was 30.1 hours; comparison with the New Haven shows the following:

	6 months ending Dec. 31, 1922
Mechanicville	30.1 hours
Maybrook	38.2 "
New Haven (Cedar Hill) ..	21.6 "
Providence	19.7 "

The Boston & Maine receives directly into its Mechanicville yard from the Delaware & Hudson railroad a movement which during the twelve months ending June 30, 1922, averaged 432 cars per day.

But this is not the whole story. The Boston & Maine during the 12 months ending June 30, 1922, received an average of 226 cars from the New York Central at Rotterdam Junction. The cars entered the Rotterdam Junction yard but practically no classification was carried on there. These cars were pulled for classification 22 miles further to the Mechanicville yard, yet the daily average detention in the Rotterdam yard of these eastbound cars coming off of the New York Central and West Shore roads in trains and simply awaiting further movement to the Mechanicville classification yard was 11.1 hours for the year ending June 30, 1922, and 14.0 hours for the 6 months ending December 31, 1922. This means that the average car coming off the New York Central system at Rotterdam Junction was first delayed 11.1 hours at Rotterdam Junction and then at the Mechanicville yard, 22 miles further on, 25.0 more hours, a total delay of 36.1 hours at the western end of the system for each car coming off the West Shore or New York Central road before the car moves out of Mechanicville for its first regular engine run of 84 miles to East Deerfield.

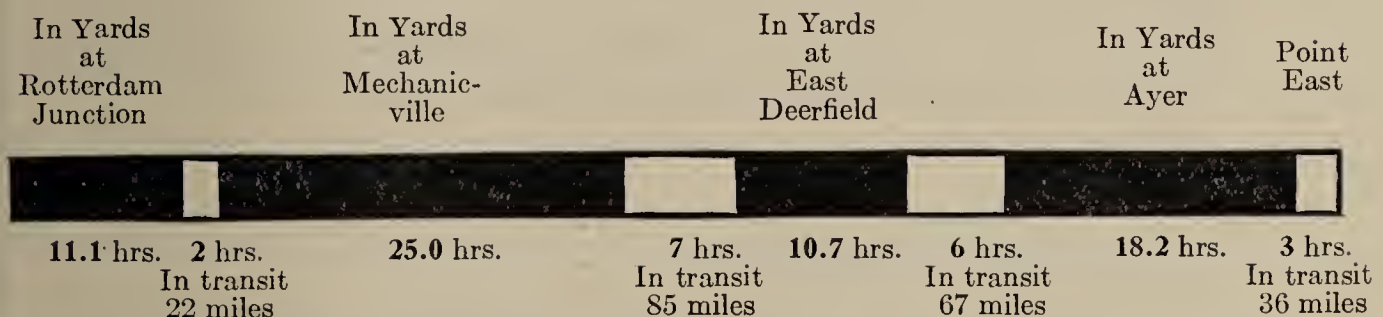
At East Deerfield the daily average for the year ending June 30, 1922 was 10.7 hours, and for the 6 months ending December 31, 1922, 18.2 hours. (Eastbound movement only.)

During the year ending June 30, 1922, an average of 653 cars moved further east out of the East Deer-

field yard, and during the 6 months ending December 31, 1922, 580 cars a day. A large proportion of these cars moving east out of Deerfield go into the classification yard at Ayer, where there was a daily average detention for the year ending June 30, 1922, of 18.2 hours, and for the 6 months ending December 31, 1922, 24.0 hours. Ayer classified during the year ending June 30, 1922, a daily average of 339 cars, and for the 6 months ending December 31, 1922, 344 cars. (East bound only.) We show in the form of a diagram, the time consumed by the average car coming off the New York Central or West Shore road at Rotterdam Junction and moving to a point east of Ayer.

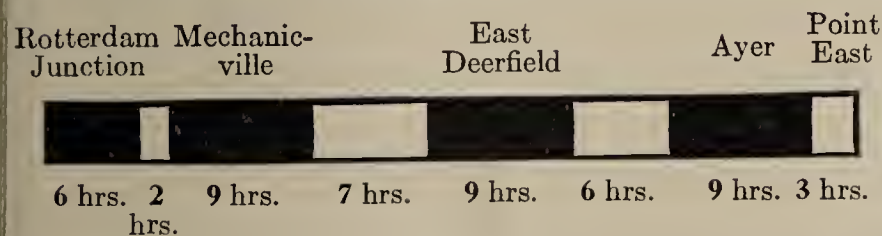
CAR MOVEMENT
ROTTERDAM JUNCTION TO BOSTON

Present Car Movement.



Total Present time = 83 hours

Possible Car Movement



Total Possible time = 51 hours

Possible Reduction in Delay = 32 hours

From the Ayer yard some of the cars move to Boston. Many go north by the old Stony Brook railroad destined for Lowell or beyond to Portland, or points on the Maine Central system or on the Bangor & Aroostook.

CARS MOVED DAILY

Another measure of effective operation for which figures have been compiled from the records of the respective railroads is the percentage of cars moved each day compared with the number ready and waiting to be moved.

Cars standing upon the tracks of the railroad on any one day may be classified as coming under one of the following heads:

Cars under load at stations or terminals to be unloaded.

Cars at stations or terminals being loaded.

Empty cars awaiting loading orders.

Bad order cars.

Stored cars.

Cars ready for movement.

The last named cars are in service ready to be moved. The average cars moved, out of all ready to be moved as reported by 51 representative railroads outside of New England for the year ending June 30, 1922, was 74.0 per cent. Any percentage moved below that is below the average efficiency of the United States, and any percentage above is above the average efficiency.

Applying this test to the Boston & Maine railroad, we find that for the twelve months ending June 30, 1922, the average percentage of cars actually moved

daily of the total ready to be moved was 61.5 per cent, and for the six months ending December 31, 1922, was 56.2 per cent, and for all New England railroads as follows:

	Year Ending June 30, 1922	6 months ending Dec. 31, 1922
Boston & Albany	80.3 per cent	77.2 per cent
Rutland	78.4 " "	80.0 " "
Maine Central	76.6 " "	71.7 " "
Central Vermont	76.1 " "	69.9 " "
Bangor & Aroostook	75.8 " "	75.8 " "
New Haven	69.2 " "	58.7 " "
Boston & Maine	61.5 " "	56.2 " "
Atlantic & St. Lawrence ..	58.3 " "	63.1 " "

If the Boston & Maine had attained the 74.0 per cent of the 51 important railroads mentioned above, there would have been left over daily an average of 3,119 cars in place of the 5,548 actually left standing, or a daily saving in car days of 2,429.

This converted into one year's performance represents a saving of \$886,585.00.

EMBARGO POLICY OF BOSTON & MAINE

In the case of the Boston & Maine system, as in the case of the New Haven, there is a point in the accumulation of cars on the system where more cars mean rapidly mounting adverse per diems and few or no more ton miles manufactured. Indeed the jam can easily be carried to the point where the ton miles produced are seriously cut down.

We give the average number of cars on the system during 1922 and the first four months of 1923, and also

the average car miles per car day:

	Daily Average Cars on line	Car Miles Per Car Day (all cars)	Number Bad Order Cars
1922 — January	30,211	15.1	5,934
February	31,675	17.1	5,906
March	31,677	18.7	5,818
April	30,054	16.9	5,642
May	30,466	17.1	5,599
June	31,045	16.8	5,659
July	29,772	16.2	5,153
August	29,972	16.8	5,645
September	32,000	17.5	5,259
October	34,811	18.5	4,748
November	36,833	17.7	4,499
December	36,663	15.1	4,234
1923 — January	39,324	11.4	3,976
February	41,469	11.1	3,956
March	41,538	13.8	3,952
April	41,079	16.6	3,795

We believe the Boston & Maine would have been much better off if it had limited the cars on its system during these last eight months to 32,000. Perhaps in summer, when weather conditions are favorable, and if other conditions are also favorable, the road can maintain a satisfactory daily car movement with a larger number on the line, but, with a strike on its hands and winter weather coming on, we think it would have been much better policy and would have saved a large sum of money, and would have resulted in just about as many ton miles for the system if it had kept the number down to 32,000. The Boston & Maine uses the straight embargo method as contrasted with the New Haven permit system; in other words, under the Boston & Maine plan if the road is in danger of being blocked an embargo with certain specified exceptions is put on, it may be only for a few days, then taken off, and then again restored,

according to the number of cars on the system and the number reported moving towards the system.

In the month of September the road averaged 32,000 cars on the line, and the daily average movement was 17.5 miles. During October the number rose to an average of 34,811, meaning probably about 33,000 at the beginning of the month and probably close to 36,000 at the end of the month. The daily distance per car went up to 18.5 miles. This was a good spurt, and represented hard work by all hands to move the traffic and keep the road clear, but the condition of the locomotives was poor and winter coming on. In November the number of cars on the line was allowed to rise substantially further to an average of 36,833, and the average daily movement per car dropped to 17.7. In December the number of cars on the line was about the same, and the daily movement dropped to 15.1. In January, February and March, 1923, as will be seen from the preceding table, the number of cars on the line averaged considerably over 40,000, and the daily distance dropped to 11.4 for January, 11.1 for February, and 13.8 for March. In April, with an average of 41,079 cars on the line, the road did well to maintain an average daily car travel of 16.6, but still in our judgment, in April, in spite of more favorable operating conditions, the road was attempting to carry a load beyond its strength, and April net earnings were correspondingly affected.

If the number of cars on the system had been kept down to 32,000 from October 1st to May 1st, the saving in per diems would have aggregated \$1,436,908 in the seven months' period.

If kept down to 33,000 cars the saving would have been \$1,224,908. The following table shows the saving by months on the basis of 32,000 cars on line:

	Cars on Line	Adverse Car Per Diems	Decrease in Adverse Car per Diems if Cars had been kept down to 32,000 cars
1923 — January	30,211	\$327,398	.....
February	31,675	349,171	.....
March	31,677	392,049	.....
April	30,054	309,076	.....
May	30,466	330,810	.....
June	31,045	334,408	.....
July	29,772	330,543	.....
August	29,972	369,359	.....
September	32,000	443,212	.....
October	34,811	576,000	\$87,141
November	36,833	647,444	144,990
December	36,663	652,970	144,553
Total 12 months ...		\$5,062,440	\$376,684
1922 — January	39,324	\$727,221	\$227,044
February	41,469	730,727	265,132
March	41,538	831,172	295,678
April	41,079	796,222	272,370
Total 16 months ...		\$8,147,782	\$1,436,908

As we pointed out in considering the New Haven Railroad the car per diems received by the Boston & Maine system for the use of its cars on other systems constitutes no compensation to be balanced against this outgo. The car per diems received from other roads merely represents upkeep, depreciation, and a return upon the capital invested in the cars which these other roads are using.

The Boston & Maine car per diems receivable for the same period were:

	Per Diems Receivable
1922 — January	\$106,232
February	98,499
March	113,889
April	108,140
May	111,688
June	103,882
July	125,385
August	152,362
September	168,541
October	195,162
November	212,896
December	227,332
Total 12 months	\$1,724,008
1923 — January	\$228,081
February	206,197
March	238,141
April	240,210
Total 16 months	\$2,636,637

MATERIALS AND SUPPLIES

Condensed Inventory						
	Dec. 31 1920	Months' Supply	Dec. 31 1921	Months' Supply	Dec. 31 1922	Months' Supply
Coal	\$2,836,844	2.1	\$1,562,499	1.4	\$1,210,173	1.3
Rails	600,253	9.2	899,837	7.4	669,706	14.1
Ties	637,770	6.4	1,196,022	6.3	673,715	4.5
Lumber	1,330,763	8.5	570,196	3.2	497,849	5.0
All other stores	7,305,268	8.5	5,696,857	7.5	4,755,714	6.7
Total Inventory	\$12,710,898		\$9,925,411		\$7,807,157	

Total materials and supplies on hand December 31, 1920, were excessive and the unnecessary surplus was costing the road about \$325,000 a year, but the surplus has been well pulled down during the last two years and the inventory on December 31, 1922, stood at a reasonable figure.

LOCOMOTIVE REPAIRS

In our discussion of the New Haven we have already shown the comparative costs of locomotive repairs in considerable detail for all the New England roads, and we have noted that the cost per locomotive mile in the year 1921 on the Boston & Maine was 30.7 cents, as compared with 35 cents on the New Haven, 23.5 cents on the Boston & Albany, and 22 cents on the Maine Central.

If comparison should be made of the cost of repairs on the Boston & Maine with the cost on the Maine Central, consideration should be given to the fact that the Maine Central locomotives average 15.6 years of age, as compared with 17.4 years on the Boston & Maine. On the other hand, the Maine Central locomotives are about 10 per cent heavier than the Boston & Maine locomotives. The Maine Central was able to maintain its locomotives in better condition than those of the Boston & Maine for a smaller expenditure per locomotive, and at the same time obtain greater mileage per locomotive. The net result was a cost per locomotive mile of 22 cents, compared with 30.7 cents on the Boston & Maine. This wide difference in cost indicates the necessity for careful attention on the part of the Boston & Maine operating officials to the possibilities of materially re-

ducing their costs on this large and important item of expense.

DENSITY

Examination of the train movement on this system shows that the only portion where the density of train movement is approaching capacity is on the main line of the Fitchburg between South Ashburnham and Boston where, however, there still remains capacity for a 25 per cent increase. Between Ayer and Lowell for a portion of the distance there is only a single track for about 9 miles. This in summer sometimes carries a train density practically up to capacity.

Between South Ashburnham and Mechanicville, there is easily room for 40 per cent increase over and above the density shown by the train reports for April and September, 1922.

In the suburban territory immediately surrounding Boston the traffic upon some sections, particularly in respect to suburban passenger trains, is heavy, and the train density has reached a point where consideration must be given before long to additional track facilities.

FINANCIAL CONDITION

EARNINGS

The income account of the Boston & Maine railroad for each of the 15½ years from June 30, 1907 to December 31, 1922, is given in Exhibit B on the opposite page. This statement shows that the company's net railway operating income (column 10) as well as its net income after fixed charges (column 18) reached the peak in the year ending December 31, 1916. The years 1918, 1919 and 1920 include the periods of government control and government guaranties, and are therefore not properly comparable with other years. The fact that the company's fixed charges were reduced by \$2,725,862 through the reorganization and consolidation on December 1, 1919 should also be taken into account in comparison with the years preceding.

GROWTH OF TRAFFIC

A study of the traffic statistics of the Boston & Maine shows that the growth of the Company's freight business, between 1912 and 1922, has been relatively small as compared with the growth for the entire Eastern District and for the entire United States.* It will also be noted that the number of passengers carried was 6.1 per cent less in 1922 than in 1912. While there has been an encouraging gain in both freight and passenger business during the first four months of 1923, the normal annual increase in traffic on the Boston & Maine will probably continue to be comparatively small. This is chiefly because a large part of the road's mileage

* Appendix J. Revenue Ton Miles and Passenger Miles, Boston & Maine Railroad 1903-1922 (chart), and Appendix K. Volume of Freight and Passenger Traffic, Revenues and Rates, Boston & Maine, 1912-1922.

EXHIBIT B

BOSTON & MAINE RAILROAD CONDENSED INCOME ACCOUNT
1908 TO 1922

YEAR ENDING JUNE 30	1 RAILWAY OPERATING REVENUES	2 RAILWAY OPERATING EXPENSES	Percent Expenses to Revenues	3 RAILWAY NET OPERATING REVENUES	4 TAXES	5 UNCOLLEC- TIBLE RAILWAY REVENUES	6 HIRE OF FREIGHT CARS (Net)	7 OTHER EQUIPMENT RENTS (Net)	8 JOINT FACILITY RENTS (Net)	9 TOTAL TAXES AND RENTS (Cols. 4 to 8)	10 NET RAILWAY OPERATING INCOME	Percent Column 10 to Column 1	11 Non- OPERATING INCOME	12 GOVERNMENT GUARANTEE ADJUSTED	13 TOTAL INCOME AVAILABLE FOR FIXED CHARGES (Cols. 10, 11, 12)	14 RENT FOR LEASED ROADS	15 INTEREST ON DEBT	16 OTHER DEDUCTIONS	17 TOTAL FIXED CHARGES (Cols. 14, 15, 16)	18 NET INCOME APPLICABLE TO DIVIDENDS (Cols. 13-17)	19 DIVIDENDS PAID	20 BALANCE OF INCOME	YEAR ENDING JUNE 30
1908	\$39,445,444	\$29,361,115	74.43	\$10,084,329	\$1,712,272	.....	\$1,303,744	<i>-\$18,987</i>	<i>-\$10,392</i>	\$2,986,637	\$7,097,692	17.99	\$642,213	.....	\$7,739,905	\$5,183,515	\$1,769,905	\$6,204	\$6,959,624	\$780,281	\$2,080,621	<i>-\$1,800,340</i>	1908
1909	39,999,622	28,651,365	71.63	11,348,257	1,789,933	.....	649,279	<i>-22,856</i>	<i>-26,360</i>	2,339,996	8,958,261	22.26	570,314	.....	9,528,575	5,246,433	1,859,357	6,397	7,112,187	2,416,388	1,817,361	599,027	1909
1910	43,849,191	31,781,080	72.48	12,068,111	2,076,880	.....	763,884	<i>-11,214</i>	<i>-24,205</i>	2,805,345	9,262,766	21.12	673,017	.....	9,935,783	5,265,498	1,783,910	6,969	7,056,377	2,879,406	1,868,520	1,010,886	1910
1911	45,363,663	35,629,046	78.54	9,734,617	2,089,905	.....	888,655	<i>-40,074</i>	<i>-24,684</i>	2,913,802	6,820,815	15.04	788,453	.....	7,609,268	5,385,054	1,834,171	5,270	7,224,495	384,773	1,958,971	<i>-1,574,198</i>	1911
1912	46,630,746	35,584,254	76.31	11,046,492	2,086,864	.....	1,078,561	<i>-14,666</i>	89,635	3,240,494	7,805,998	16.74	779,079	.....	8,585,077	5,176,879	2,083,703	5,462	7,266,044	1,319,033	1,767,951	<i>-448,918</i>	1912
1913	49,241,948	38,641,952	78.47	10,599,996	2,025,629	.....	1,817,232	<i>-68,917</i>	74,933	3,848,877	6,751,119	13.71	1,316,773	.....	8,067,892	5,312,700	2,604,223	5,959	7,922,882	145,010	1,374,138	<i>-1,229,128</i>	1913
1914	48,155,179	38,851,712	80.68	9,303,467	2,059,017	.....	1,583,774	<i>-48,370</i>	68,905	3,663,326	5,640,141	11.71	1,460,063	.....	7,100,204	5,487,629	3,572,778	10,700	9,071,107	<i>-1,970,903</i>	.....	<i>-1,970,903</i>	1914
1915	46,673,049	35,909,772	76.94	10,763,277	1,978,223	\$5,944	1,196,325	<i>-10,823</i>	82,645	3,252,314	7,510,963	16.09	833,685	.....	8,344,648	5,589,406	3,003,721	8,178	8,601,305	<i>-266,657</i>	.....	<i>-266,657</i>	1915
1916	52,075,428	36,197,959	69.51	15,877,469	1,986,267	2,624	2,074,248	<i>-20,309</i>	54,866	4,097,696	11,779,773	22.62	711,100	.....	12,490,873	5,626,029	2,700,045	17,104	8,343,178	4,147,695	.....	4,147,695	1916
YEAR ENDING DEC. 31																							YEAR ENDING DEC. 31
1916	55,383,544	38,251,715	69.07	17,131,829	2,091,089	3,769	2,561,723	<i>-34,871</i>	65,737	4,687,447	12,444,382	22.47	747,018	.....	13,191,400	5,659,634	2,651,844	12,274	8,323,752	4,867,648	.....	4,867,648	1916
1917	59,450,779	47,164,940	79.33	12,285,839	2,156,650	3,791	2,954,175	<i>-21,038</i>	50,038	5,143,616	7,142,223	12.02	753,953	.....	7,896,176	5,695,962	2,523,024	11,467	8,230,453	<i>-334,277</i>	.....	<i>-334,277</i>	1917
1918	A 70,157,584	64,779,651	92.33	5,377,933	2,317,524	124	1,526,911	<i>-47,518</i>	77,698	3,874,739	1,503,194A	2.14	486,436	\$6,355,562 B	8,345,192	5,562,924	2,522,374	1,994	8,087,292	257,900	.....	257,900	1918
1919	A 72,935,146	67,144,063	92.06	5,791,083	3,043,387	1,062	877,363	<i>-97,620</i>	217,591	4,041,783	1,749,300A	2.40	490,346	5,775,820 B	8,015,466	928,550	4,428,307	1,086	5,357,943	2,657,523	2,035,716	621,807	1919
1920	A 86,652,745	90,989,432	105.00	<i>-4,336,687</i>	3,001,087	48,126	4,416,809	<i>-10,237</i>	125,748	7,581,533	<i>-11,918,220A</i>	Def.	803,795	17,989,554 B	6,875,129	927,845	5,291,080	41,474	6,260,399	614,730	1,227,948	<i>-618,213</i>	1920
1921	78,477,418	73,158,885	93.22	5,318,533	2,728,224	7,281	3,178,427	<i>-117,744</i>	110,713	5,906,901	<i>-588,368</i>	Def.	968,193	.....	379,825	923,180	6,033,428	35,639	6,992,247	<i>-6,612,422</i>	.....	<i>-6,612,422</i>	1921
1922	79,800,123	67,054,397	84.03	12,745,726	2,580,677	5,094	3,740,974	<i>-18,350</i>	<i>-38,409</i>	6,269,986	6,475,740	8.11	797,209	7,272,949	920,376	6,004,691	319,890 C	7,244,957	27,992	27,992	1922

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-Italics indicate
Deficit

This Condensed Income Account does not include the figures for the following small lines in the Boston & Maine System for which complete information was not available for the entire period. The Railway Operating Revenues of these small lines in 1922 were only 3% of the Railway Operating Revenues of the Boston & Maine System.

Vermont Valley
Sullivan County
St. Johnsbury & Lake Champlain
Barre & Chelsea

York Harbor & Beach
Mount Washington
Montpelier & Wells River

A — Federal and Corporate accounts combined for cols. 1 to 10.

B — Government Guarantee Adjusted represents the difference between the Net Railway Operating Income guaranteed by the Government and the Net Railway Operating Income earned by the United States Railroad Administration during Federal control and by the corporation during the Guaranty Period after adjustment for Revenues and Expenses prior to January 1, 1918.

C — Includes \$280,462 representing net of Revenues and Expenses prior to January 1, 1918, due U. S. Government leaving a balance of \$39,428 of other deductions applicable to corporate operation in 1922.

is in the states of Maine, New Hampshire and Vermont, where the growth in population and business has been relatively light during the last decade. Unless a much larger volume of interchange business or export business can be developed through the northern gateways via Canada, the Boston & Maine can hardly hope to keep pace with Southern New England, or with the country as a whole, in growth of traffic.

COMPARISON OF RESULTS OF 1922 WITH 1916

The following comparison of income accounts for the year ending December 31, 1916, with the year 1922, gives a significant picture of the decline in net income, and indicates some of the reasons for that decline.

	Year ending Dec. 31, 1916	Year ending Dec. 31, 1922	Increase	Decrease
Railway Operating Revenues	\$55,383,544	\$79,800,123	\$24,416,579	
Railway Operating Expenses	38,251,715	67,054,397	28,802,682	
Railway Net Operating Revenue	17,131,829	12,745,726		\$4,386,103
Taxes and Rents				
Taxes	2,091,089	2,580,677	489,588	
Equipment Rentals (net)....	2,526,852	3,722,624	1,195,772	
Joint Facility Rentals (net) Cr.	65,737	38,409		104,146
Uncollectible Railway Revenues	3,769	5,094	1,325	
Total Taxes and Rents	4,687,447	6,269,986	1,582,539	
Net Railway Operating Income	12,444,382	6,475,740		5,968,642
Non-operating Income	747,018	797,209	50,191	
Total Income Applicable to Fixed Charges	13,191,400	7,272,949		5,918,451
Fixed Charges				
Rentals of Leased Roads	5,659,634	920,376		4,739,258
Interest on Debt	2,651,844	6,004,691	3,352,847	
Other Deductions	12,274	319,890	307,616	
Total Fixed Charges	8,323,752	7,244,957		1,078,795
Net Income after Fixed Charges	4,867,648	27,992		4,839,656
Dividends paid	None	None		.....
Balance of Income	\$4,867,648	\$27,992		\$4,839,656

It is to be noted that in spite of an increase in Railway Operating Revenues of \$24,416,579, or 44 per cent in 1922, as compared with 1916, Operating Expenses increased \$28,802,682, so that there was a decrease of \$4,386,103 in Railway Net Operating Revenue in 1922, as compared with 1916. The increase of \$1,195,772 in net Equipment Rentals (chiefly per diem charges for use of freight cars of other roads) is also an important cause of the relatively poor showing in 1922. The increase of \$489,588, or 23.4 per cent in Taxes is also an important factor. The decrease of \$1,078,795 in Fixed Charges is more than accounted for by the reduction of \$2,725,000 in Fixed Charges effected by the reorganization in 1919. The difference is due to increase in interest-bearing debt incurred for additions and improvements since 1916.

In considering the above comparison it must not be forgotten that the year ending December 31, 1916, was the best year in the company's history, both as regards net earnings and as regards expense ratios. If present labor costs, rentals of equipment, transportation rates, and divisions of freight rates on business interchanged with western connecting lines, remain unchanged, the company cannot expect to equal the record of 1916 in the near future.

COMPARATIVE EXPENSE RATIOS, 1908-1922

The following statement shows the ratios of expenses to total railway operating revenue each year from 1908 to 1922, inclusive:

Year ending June 30	OPERATING EXPENSES					Taxes and Rents	Total Operating Expenses Taxes and Rent
	Way & Struc- tures	Maintenance Equip- ment	Total Mainte- nance	Transpor- tation Ex- penses	Other Ex- penses	Total Operat- ing Ex- penses	
1908	11.74	11.09	22.83	47.49	4.11	74.43	82.01
1909	10.72	11.88	22.60	44.86	4.17	71.63	77.74
1910	12.06	12.48	24.54	43.85	4.09	72.48	78.88
1911	13.37	13.77	27.14	46.80	4.60	78.54	84.96
1912	12.49	13.75	26.24	45.71	4.36	76.31	83.26
1913	11.01	15.78	26.79	46.90	4.78	78.47	86.29
1914	13.59	16.06	29.65	46.08	4.95	80.68	88.29
1915	15.42	14.34	29.76	43.23	3.95	76.94	83.91
1916	11.50	12.65	24.15	41.75	3.61	69.51	77.38
Calendar							
Year							
1916	11.07	12.80	23.87	41.69	3.51	69.07	77.53
1917	10.41	14.78	25.19	50.39	3.75	79.33	87.92
1918	14.33	20.28	34.61	53.62	3.93	92.16	97.58
1919	13.18	20.96	34.14	52.70	4.12	90.96	95.63
1920	17.42	23.27	40.69	59.26	5.05	105.00	113.75
1921	16.43	20.30	36.73	51.50	4.99	93.22	100.75
1922	13.88	20.19	34.07	45.67	4.29	84.03	9.89

Expenses for Maintenance took 34.07 cents out of every dollar of gross revenue in 1922, as compared with 23.87 cents in 1916, an increase of about 10 cents, of which increase about three-fourths was in Maintenance of Equipment. Transportation Expenses in 1922 took 45.67 cents out of every dollar of gross revenue as compared with 41.69 cents in 1916, an increase of about 4 cents. It will be observed, however, that the ratio of transportation expenses (45.67 per cent of gross revenue) in 1922 was not materially greater than the average of the 8 years prior to 1916.

RESULTS OF OPERATION FIRST FOUR MONTHS OF 1923

Results for the 4 months ending April 30, 1923, compared with the same 4 months of 1922, were as follows:

	4 Months 1922	4 Months 1923	Increase	Decrease
Railway Operating Revenues...	\$24,833,466	\$27,300,482	\$2,467,016	
Railway Operating Expenses...	21,588,527	26,533,676	4,945,149	
Ratio of Expenses to Revenue.....	86.93	97.19	10.26	
Railway Net Operating Revenues	\$3,244,939	\$766,806		\$2,478,133
Taxes and Rents:				
Taxes.....	\$701,411	\$948,864	\$247,453	
Rental of Equipment (net) ..	1,020,415	2,275,800	1,255,385	
Joint Facility Rents (net) ...	55,433	cr. 20,466	75,899	
Uncollectible Ry. Revenues ..	688	99		589
Total Taxes and Rents....	\$1,667,081	\$3,245,229	\$1,578,148	
Net Railway Operating Income	\$1,577,858	\$2,478,423	Def.	\$4,056,281
Non-operating Income	238,820	238,266		554
Total Income Applicable to Fixed Charges	\$1,816,678	\$2,240,157	Def.	\$4,056,835
Fixed Charges:				
Rental of leased Roads.....	\$306,792	\$306,792		
Interest on Debt.....	1,973,943	2,056,667	\$82,724	
Other Deductions.....	282,157	28,855		\$253,302
Total Fixed Charges.....	\$2,562,892	\$2,392,314		\$170,578
Net Income (Deficit).....	\$746,214	\$4,632,471		\$3,886,257

The principal items of increased transportation revenue during the four months were:

Freight revenue increased.....	\$1,320,210	or	8%
Passenger revenue increased....	544,025	or	8%
Express revenue increased.....	284,079	or	39%
Milk revenue increased	69,701	or	12%

If operating conditions had been normal, these excellent increases in gross revenue should logically have resulted in increased net revenue. But operating expenses increased so heavily that net operating revenue was \$2,478,133 less than in the same four months of 1922. Furthermore, rentals of equipment increased \$1,255,385 or 123%, and accrued taxes increased \$247,453 or 35%. The total deficit for the four months was \$4,632,471 or \$3,886,257 worse than in the same period of 1922.

Analyzing the increases in operating expenses it appears that:

Maintenance of Way and Structures increased.. \$ 530,250

This increase is more than accounted for by the fact that the cost of removing snow and ice was \$1,063,998 in the four months of 1923 as compared with \$339,531 in 1922, an increase of \$724,467.

Maintenance of Equipment increased.....\$1,698,760

This increase is chiefly accounted for by the fact that Repairs of Steam Locomotives cost \$3,480,762 in the four months of 1923, as compared with \$1,990,410 in 1922, an increase of \$1,490,352.

Transportation Expenses increased.....\$2,780,628

The principal increases in Transportation Expenses were:

1. Increased cost of Fuel for Locomotives,
\$1,129,488 or 38%
2. Increases in wages of Enginemen and Trainmen, on roads and in yards, \$1,306,209 or 39%

A relatively small part of the increased transportation expenses is accounted for by increased traffic. A considerable part of the increased cost of fuel is undoubtedly due to the higher prices, caused by the coal strike. The remainder of these increased expenses resulted from delays to traffic caused by the severe winter and from the unusually poor condition of locomotives and equipment resulting from the shopmen's strike.

FINANCIAL OUTLOOK FOR 1923

In the year 1922 the Boston & Maine reached May 1 with a deficit for the four months of \$746,214. By the end of 1922 this deficit had been overcome and the road showed the small balance over fixed charges of \$27,992.

This year the deficit on May 1 was \$4,632,471, a sum too large it seems to permit the road to escape a substantial deficit for the year 1923.

BOSTON & ALBANY RAILROAD

The Boston & Albany system comprises 393 miles (Map 9). It has 444 passenger cars, 7,412 freight cars and 351 locomotives, and produced during the year 1922, 376,177,887 passenger miles and 1,089,660,257 ton miles of revenue freight. 163 of the passenger cars are steel and 126 wooden with steel underframes.

The main line comprises 51 per cent of the total mileage of the system and extends from Boston to its connection with the New York Central Railway at Rensselaer, a distance of 200 miles. It is in good physical condition, well suited to the volume of traffic moving.* The main stem has two tracks throughout its entire length and considerable third track to help the freights in their slow movement up the heavy grades and four and five tracks within the Boston suburban area. As compared with the Shore Line of the New Haven, it is handicapped by two extremely heavy grades. The first reaches its summit of 960 feet at Charlton; thence the line descends again to practically tide level at Springfield in the valley of the Connecticut. West of the Connecticut the road rises finally by heavy grades to an elevation of 1,440 feet, where it crosses the backbone of the Berkshires. Again the line descends to the valley of the Housatonic at Pittsfield 950 feet above ocean level. From here by easier grades the road continues to its western terminus at Rensselaer.

* Appendix L. Revenue Ton Miles and Passenger Miles, Boston & Albany Railroad, 1903-1922 (Chart).

The movement of freight upon this line is very heavy. The Boston & Albany has a practical monopoly of the through passenger business between New England and the West, and as on the Shore Line of the New Haven the movement of freight is complicated by the necessity of caring for frequent high speed passenger trains. Ten through express passenger trains daily in each direction travel between Boston and Albany and also in addition a number of New York express trains pass over the main line for 100 miles to Springfield. The road has established the transportation policy of moving its freights relatively fast as compared with the practice on the main line of the New Haven Railroad. This policy is probably partly to keep the freights out of the way of the passenger trains or, to put it another way, in order to permit a freight train to make a good run between the movement of two passenger trains before it is overtaken by the second. This is not altogether an operating disadvantage. A heavy freight of 3,000 tons moving at an average speed of 8 miles an hour manufactures the same ton miles per hour as a train of 2,000 tons moving at 12 miles an hour.

FREIGHT CAR MOVEMENT

The Boston & Albany, as we have already noted, stands at the head of the New England list in the average daily movement per car for all cars on the system. The following are the figures for the year ending June 30, 1922:

	Car Miles per Freight Car Day (All Cars)	Bad Order Cars Eliminated
Boston & Albany	27.8	30.0
Atlantic & St. Lawrence	21.8	23.3
Central Vermont	19.3	29.5
Maine Central	17.8	21.2
Rutland	17.7	23.6
Boston & Maine	17.1	21.2
Bangor & Aroostook	13.8	19.3
New Haven	13.6	18.1

NET TON MILES PER CAR DAY

The Boston & Albany also stands at the top in the average net ton miles per freight car day: Year ending June 30, 1922.

Boston & Albany	365
Atlantic & St. Lawrence	347
Central Vermont	268
Maine Central	264
Rutland	247
Boston & Maine	246
New Haven	198
Bangor & Aroostook	186

PERCENTAGE OF CARS MOVED DAILY

The percentage moved each day of the average number of cars ready to be moved, for the year ending June 30, 1922, was the highest in New England. During the six months ending December 31, 1922, it was the next to the highest. We give the comparison for the year ended June 30, 1922, and for the six months ending December 31, 1922.

	Year Ending June 30, 1922	6 Mos. Ending Dec. 31, 1922
Boston & Albany	80.3%	77.2%
Rutland	78.4	80.0
Maine Central	76.6	71.7
Central Vermont	76.1	69.9
Bangor & Aroostook	75.8	75.8
New Haven	69.2	58.7
Boston & Maine	61.5	56.2
Atlantic & St. Lawrence	58.3	63.1

YARD AND TERMINAL OPERATION

The classification at the western end of the Boston & Albany is performed for it by the New York Central in its West Albany yard.

The Boston & Albany maintains a large flat classification yard at West Springfield, but it is hardly fair to compare the results attained in this yard with the time consumed at Maybrook or with the Mechanicville yard of the Boston & Maine. West Springfield is more nearly comparable to the East Deerfield yard of the Boston & Maine system. For the year ending June 30, 1922, including cars moving in both directions, an average of 1220 cars daily were

handled. The average delay was 6.1 hours, an admirable record, less than half the time consumed (12.7 hours) at the East Deerfield yard of the Boston & Maine for the same period.

At Springfield the New Haven and Boston & Maine also operate freight yards.

The Springfield yard of the New Haven railroad is small and is not a classification yard. The cars handled here during the year ending June 30, 1922, averaged 143 a day and were delayed an average of 17.4 hours. The yard of the Boston & Maine is also a small yard, and handled an average daily, for the same period, of 97 cars and the average delay was 7.2 hours—a good record.

It is not necessary to go into further detail in regard to the operation of the Boston & Albany road. It has arduous grades on its main line instead of the nearly water level route of the New Haven line from Boston to New York, but with a relatively high percentage of main line and small branch mileage it presents a simpler operating problem than the New Haven, or the Boston & Maine. It certainly maintains a high standard of operating efficiency, and makes the most of every favorable condition.

EMBARGO POLICY

The Boston & Albany management does not believe in the permit system, and no permits are granted. The officials watch the condition and performance of their road and the loads coming towards them far back on

the connecting lines, and if they fear congestion put on a general embargo with the usual published exceptions, perishables, foodstuffs, etc., and then in a few days, or as soon as possible, withdraw the embargo.

We give for the period from January, 1922, to April, 1923, the daily averages by months of total cars on the system and the car miles per freight car day:

Month	Cars on Line	Average Car Miles per Freight Car Day	Per Cent of Cars Moved of Total to be Moved
1922 — January	7,948	24.9	80.6
February	8,503	27.6	84.4
March	8,533	28.5	83.0
April	8,069	26.2	81.3
May	8,236	27.0	79.4
June	8,782	26.9	79.7
July	8,139	25.2	75.5
August	7,738	28.0	78.1
September	8,198	27.1	76.3
October	8,970	28.8	78.1
November	9,455	29.6	77.5
December	9,950	25.4	78.4
1923 — January	9,878	21.8	71.7
February	9,907	24.2	74.1
March	10,678	27.8	76.6
April	11,051	29.7	78.7

This table seems to indicate that in spite of the unexpected and wholly abnormal adverse winter conditions reducing drawbar pull of locomotives and hindering operation of trains over the Berkshire Hills and impeding switching in yards, the management at all times kept the flow of traffic under control.

The figures reflect of course to some extent the adverse weather conditions of last winter, but it is clear a sound and adaptable judgment was at the control lever, and at no time so far as we can see did the road become over-congested or get out of hand.

The daily car miles were well maintained and the percentage of cars moved of cars ready to be moved was kept high. Adverse per diems were kept under control:

1922 — January	\$106,441
February	116,994
March	137,318
April	124,096
May	114,908
June	118,103
July	118,533
August	131,296
September	151,410
October	198,885
November	203,588
December	220,065

Total 12 months\$1,741,637

1923 — January	\$230,938
February	204,414
March	269,176
April	266,246

Total 16 months \$2,712,411

This favorable result was not obtained because New York Central operating officials were favoring the Boston & Albany, for per diems are charged by the New York Central against the Boston & Albany exactly as against any foreign road.

It may be urged that the Boston & Albany reached an amicable adjustment with its shopmen and that it was not embarrassed in its operation by the necessity

of recruiting a new force. This should not be disregarded, but the embargo policy of the operating officials of any given railroad should not be related to their road as it could be, or might be, or should be, but as it actually is. An embargo can be declared, suspended, modified, or restored, as is often done, from day to day or week by week according to operating conditions on the road. If the weather becomes rough or a road has a high percentage of locomotives out of order due to shop troubles then these facts should have their full and due effect in dictating from day to day the embargo policy.

LOCOMOTIVE REPAIRS

The record of the Boston & Albany in the matter of locomotive repairs seems to point to efficiency in locomotive shops and at roundhouses.

The engines of the Boston & Albany averaged 36,240 pounds of tractive power in 1921, being substantially heavier than the engines of the Boston & Maine or New Haven or Maine Central, yet the average cost per locomotive mile although slightly higher than the Maine Central was much lower than either the Boston & Maine or New Haven. This result is due in part to the fact that the engines of the Boston & Albany are newer than those of the other two roads and the engine runs longer, making possible greater miles per locomotive, but our study indicates that the shop methods, the equipment of the roundhouses and the policy of making heavier repairs in the roundhouses than is done on the Boston & Maine or New Haven

have contributed to the low cost of repairs per locomotive mile on the Boston & Albany.

We give below the cost per locomotive mile, miles per locomotive, and the average tractive power per locomotive for the year ended December 31, 1921:

	Cost per locomotive mile (cents)	Miles per locomotive	Tractive power per locomotive (Pounds)
Boston & Albany	23.52	28,369	36,240
Boston & Maine	30.67	20,535	27,715
New Haven (steam)	35.03	18,124	31,097
Maine Central.....	21.95	24,000	31,149
Bangor & Aroostook	24.23	19,599	25,674
Central Vermont	26.47	25,713	27,454
Rutland	18.19	24,364	32,046

MAINE CENTRAL RAILROAD

GENERAL DESCRIPTION

The Maine Central system comprises 645 miles of line owned, 541 miles leased, and 15 miles operated under trackage rights (Map 10). It also operates two narrow gauge lines, totaling 125 miles. It owns and operates, for the joint benefit of itself and the Boston & Maine, the Portland Terminal Company.

It has 230 locomotives; 7,489 freight cars; and 292 passenger cars, of which 37 are steel, 52 steel under-frame, and 203 wooden.

The main line extends from Portland through Brunswick, Augusta, Waterville and Bangor to Vanceboro, 249 miles. The extreme eastern end of this line, from Mattawamkeag to Vanceboro, 56 miles, is also used by the Canadian Pacific as part of its main line from Montreal to St. John. Part of the main line traffic is carried on a line which extends from Portland to Waterville by way of Auburn and Lewiston, forming in effect a second track between Portland and Waterville.

The Maine Central has many branches. The longest extends from Portland through the White Mountains to Lime Ridge, Quebec, 206 miles, with a branch of its own to St. Johnsbury, Vermont, 32 miles. At various points on these branches connection is made with the Boston & Maine, the Canadian Pacific, and the Grand Trunk. Another long branch is the Wash-

ington County, running from Washington Junction eastward to Calais, 102 miles. At Calais connection is made with a branch of the Canadian Pacific. There are various other branches — reaching Belfast, Mt. Desert Ferry, Dover-Foxcroft, Kineo, Rangeley, Kennebago. Of the total mileage operated more than 65 per cent is branch. Traffic, both freight and passenger, over most of these branches is light. In fact, a characteristic feature and great handicap of the Maine Central is its high percentage of unprofitable branch lines.

Total revenue ton miles produced by the Maine Central in the year ending December 31, 1922, amounted to 857,667,341, an increase over 1912 of 40.02 per cent. Passenger miles totaled 128,430,706, a decrease from 1912 of 20.4 per cent.*

The chief points of freight interchange are at Portland, with the Boston & Maine, and at Northern Maine Junction (Bangor) with the Bangor & Aroostook. At Portland the road received from the Boston & Maine in the year ending June 30, 1922, a daily average of 437 cars, and delivered 432. Loaded cars delivered largely exceeded those received owing to the bulky tonnage furnished by the sawmills and pulpmills and by the Aroostook potato crop. During the calendar year 1922 the road hauled 42,005 cars of lumber, 40,287 cars of pulpwood, 25,923 cars of paper, and 34,302 cars of potatoes, comprising 45 per cent of the total tonnage carried that year. The interchange with the Bangor &

* Appendix M. Revenue Ton Miles and Passenger Miles, Maine Central Railroad, 1903-1922 (Chart).

Aroostook at Northern Maine Junction amounted to a daily average in the year ending June 30, 1922, of 154 cars received and 157 cars delivered.

The Maine Central is the chief rail outlet to the market of lower New England for the extensive territory in eastern and northern Maine, New Brunswick and the easterly portion of the Province of Quebec.

OPERATION

We find that the Maine Central is well operated. For the year ending June 30, 1922, it maintained a daily average movement per freight car day of 17.8 miles. It produced 264 net ton miles per car per day, standing fourth in the list of New England roads (year ending June 30, 1922):

	Net Ton Miles per Freight Car Day
Boston & Albany	365
Atlantic & St. Lawrence	347
Central Vermont	268
Maine Central	264
Rutland	247
Boston & Maine	246
New Haven	198
Bangor & Aroostook	186

This road measures up well also if we apply the test of comparing the average cars moved each day with the number of cars ready to be moved:

	Year Ending June 30, 1922	6 Mos. Ending Dec. 31, 1922
Boston & Albany	80.3%	77.2%
Rutland	78.4	80.0
Maine Central	76.6	71.7
Central Vermont	76.1	69.9
Bangor & Aroostook	75.8	75.8
New Haven	69.2	58.7
Boston & Maine	61.5	56.2
Atlantic & St. Lawrence	58.3	63.1

The yard delays on the Maine Central are small. Portland shows the longest detention. For the year ending June 30, 1922, this was 11.6 hours. The average delay for movement of cars through all the yards in the whole system, including Portland, for the year ending June 30, 1922, was 7.3 hours. The new classification yard now under construction is expected to effect a material reduction in car delay at Portland.

The number of bad order cars on this system is low, averaging during 1922 only 7.9% of the total cars on the line, compared with an average for all the railroads of the country of 12.5%, and with the following for the New England roads (year ending Dec. 31, 1922) :

Railroad	Freight Cars Per cent Unserviceable
Boston & Albany	5.9
Atlantic & St. Lawrence	6.0
Maine Central	7.9
Boston & Maine	16.7
Rutland	21.2
New Haven	23.6
Bangor & Aroostook	24.2
Central Vermont	26.5
U. S. (excluding New England lines)	12.5

The average percentage of locomotives out of service awaiting repairs requiring more than 24 hours for the calendar year 1922 also makes a fair comparison with the other New England roads:

	Per cent Unserviceable Locomotives	
	Freight	Passenger
Central Vermont	20.6	21.6
Boston & Albany	20.7	19.8
Rutland	23.3	13.3
New Haven	24.2	28.3
Maine Central	24.6	20.8
Atlantic & St. Lawrence	24.8	15.5
Bangor & Aroostook	25.8	28.2
Boston & Maine	29.5	32.6

LOCOMOTIVE REPAIRS

We have already commented on the low cost of locomotive repairs on the Maine Central in our discussion of the Boston & Maine. There seems to be a high degree of efficiency in this branch of the service.

FINANCIAL

The capitalization of this road in 1915 was: bonds \$12,661,500, common stock \$24,888,000. By December 31, 1922, the amount of bonds had been practically doubled—\$24,212,600, and the common stock cut in halves—\$12,006,000. \$3,000,000 of 5% preferred stock was issued in 1916.

This large increase in bonds, the issue of the preferred stock, and the reduction of the common stock are in large part explained by the purchase in 1916 of \$15,960,000 common stock owned by the Boston & Maine, constituting a majority of the common stock. In carrying out this purchase of its common stock owned by the Boston & Maine, the Maine Central reduced its common stock from \$25,000,000 to \$15,000,000, and as it took into its treasury \$2,881,500 in effect reduced its outstanding common stock in the hands of the public from the \$24,888,000 as it stood in 1915 to \$12,006,900 in 1916. At this figure the common stock in the hands of the public still stands today. In order to assist in the purchase of this stock owned by the Boston & Maine, the Maine Central in 1916 issued \$7,000,000 mortgage bonds, carrying interest at 4½%, and \$3,000,000 of 5% preferred stock.

During the adverse years of 1918-1919-1920 the road showed heavy deficits, but in 1922 the road showed fixed charges again earned.

During the first two months of the current year the road was hard hit by the shop strike, unusual winter storms and by the embargoes declared by its southern connection, but April showed more than twice fixed charges earned, and we see no reason to believe this road is not going to show in the future substantial earnings above fixed charges.

We give below a summary of the road's income account, 1911-1922, and by months for 1923 to date:

Year	Gross Earnings	Net Railway Operating Income	Net income after fixed charges	Dividends
1911	.....\$9,300,999	\$2,031,963	\$ 444,477	\$ 398,152
1912	.....11,114,615	2,303,934	540,371	441,860
1913	.....11,494,688	2,470,169	1,138,979	1,010,277
1914	.....11,833,989	2,603,920	1,386,189	1,491,797
1915	.....11,352,258	2,527,206	1,618,080	1,483,002
1916	.....12,001,673	3,123,944	1,600,476	1,111,123
1917	.....14,125,577	2,729,314	1,056,065	870,888
1918	.....16,415,178	595,895 (deficit)	972,193	870,888
1919	.....17,525,178	1,231,427 (deficit)	1,085,971	870,888
1920	.....21,357,508	2,647,174 (deficit)	304,433	653,166
1921	.....20,590,064	*20,538	*1,677,862 (deficit)	.....
1922	.....20,387,172	*2,355,143	*63,657	.....
1923				
January	.. 1,516,549	184,190 (deficit)	338,474 (deficit)	.....
February	. 1,406,849	233,838 (deficit)	390,282 (deficit)	.....
March	... 1,819,443	59,700	96,778 (deficit)	.....
April	.... 1,986,982	438,432	277,087	.....

* Net Income in 1922 was increased by a Credit to Operating Expenses of \$487,500, on account of an adjustment applicable to 1921 expenses. We have therefore taken this credit out of 1922 expenses and applied it to 1921 expenses in order to make the results in the two years properly comparable.

BANGOR AND AROOSTOOK RAILROAD

The Bangor & Aroostook Railroad comprises 616 miles of line located in Northern Maine,—main line 259 miles, branches 357. (Map 11.) It owns 95 locomotives, 81 passenger cars, 4,224 freight cars. The main line extends from Searsport on Penobscot Bay to Van Buren on the St. John River. Its important branches are from Oldtown to Greenville on Moosehead Lake, and from Oakfield to St. Francis through Fort Kent. The Bangor & Aroostook controls the bridge across the St. John River and International Boundary to St. Leonard, New Brunswick, connecting with the Canadian Government Railway System and the Canadian Pacific Railway. The most important interchange is with the Maine Central Railroad at Northern Maine Junction (Bangor), where the average daily interchange of cars during the year ending June 30, 1922, was 311. The railroad has tidewater terminals at Stockton Harbor and Searsport which are capable of handling a large volume of traffic, but are not actively used.

The total traffic in 1922 was 267,482,345 freight ton miles, and 20,580,555 passenger miles.*

The territory served is sparsely settled averaging 244 persons per mile of road, much the lowest in New England. Passenger earnings are light, comprising only 12 per cent of gross income.

Northern Maine contains no consuming market of importance nor has it any industries to attract popula-

* Appendix N. Revenue Ton Miles and Passenger Miles, Bangor & Aroostook Railroad, 1903-1922 (chart).

tion other than those producing paper, lumber and forest products and potato starch. No mineral developments exist. It burns mostly hard wood for fuel and raises much of its food. Inbound movements are principally confined to coal and fertilizers arriving by water, and food, mill supplies, etc., coming by rail. These do not bring in many of the cars needed for outbound loading, hence a large number of empty cars are moved north. Potatoes, lumber, pulpwood, and newsprint paper constituted 62 per cent of the total freight carried in 1922. Potatoes were 24.27 per cent of the total in 1922, when 24,630 cars were handled. This heavy movement originates on and north of the latitude of the City of Quebec and is moved between October and March during the season of lowest temperature. It moves in specially heated, lined cars and in pre-heated refrigerator cars which are returned empty. The variation of potato crops, both in quantity and in season produces either surplus or shortage of the special equipment required. Price fluctuations and other conditions incident to unorganized marketing produce underload and overload for the carrier and its connections. Congestion in lower New England frequently prevents either the forwarding of non-perishable freight or the return of heater and lined cars. During the past winter the disabilities of some of the other New England railroads was costly to the Northern Maine territory and as well to both the Bangor & Aroostook and the Maine Central. Shipments to New York and Boston by water from Portland were moved last winter without serious delay but in limited quantity.

In the opinion of the Committee this road is operated with marked efficiency. It has disabilities, as we have already noted, which present difficult operating problems. The constant flow of empties northbound, and the assembling of refrigerator and heater cars to protect uncertain potato shipments impair the net ton mileage factor greatly. Our investigation develops that cars once loaded leave the line very promptly, usually within twenty-four hours. They are not held to create a fixed train tonnage, but are moved in light trains from the assembling territory. These trains are increased at each branch line junction until full tonnage rating has been reached, after which the train moves to Northern Maine Junction without delay. The road has a surplus of locomotives and an adequate supply of freight cars,—6.86 per mile of road, and is a credit per diem road. Its income from rentals of locomotives and cars to other roads is a substantial item of annual income. The percentage of cars moved each day of the total number of cars ready to be moved, for the year 1922, was 75.8 per cent, which was good practice, and is 1.8 per cent better than the average performance of 51 of the leading railroads of the United States for the same period.

This road has paid dividends on its common stock for a number of years and has been physically well maintained. It is serving a territory still in the early stages of development and capable of producing more freight tonnage than at present. The thin population and the absence of large cities simplify operation of the railroad and relieve it from many of the burdens which inflate the cost of operation in lower New England.

GRAND TRUNK RAILWAY

The Grand Trunk Railway has two important arms reaching into New England, one the Atlantic & St. Lawrence, leased for 999 years to the Grand Trunk Railway, the other the Central Vermont, controlled by majority stock ownership — about seventy-five per cent. (Map 12.)

CENTRAL VERMONT RAILWAY

The Central Vermont Railway leaves the main line of the Grand Trunk at St. Johns, Canada. The Grand Trunk also connects by a line used practically wholly for freight at Alburg Junction, Vermont. The Central Vermont, however, extends 50 miles north of Swanton in the direction of Montreal to St. Johns, Quebec, where its passenger trains continue on another 27 miles over the Grand Trunk to Montreal. Returning to Alburg Junction, the Central Vermont runs in a generally southerly direction through Vermont, passing St. Albans, Bellows Falls, and Brattleboro, crosses the Boston & Maine Fitchburg line at Millers Falls, the Boston & Albany at Palmer and finally reaches tidewater at New London, Connecticut. The Central Vermont by a branch reaches Burlington, Vermont, on Lake Champlain and Rouses Point, New York, also on Lake Champlain. The main north and south line is 344 miles in length, including some 49 miles of Boston & Maine track and 14 miles of Central Vermont track, used by both systems under a joint trackage

agreement. The Central Vermont maintains a nightly boat service for freight between New York and New London and thus gathers at New York freight for movement north and west.*

The Central Vermont offers shippers a differential rate to the west via the Grand Trunk. This differential rate out of New England was first put into effect by Governor J. Gregory Smith of Vermont, then President of the Central Vermont Railway more than forty years ago and before control was acquired by the Grand Trunk. Freight moving to the Central Vermont from Boston over the Boston & Maine system goes north through Lowell, Nashua, Manchester, Concord, and thence to White River Junction, Vermont, in the Connecticut Valley. In the year ending June 30, 1922, the Boston & Maine delivered to the Central Vermont a daily average of 36 loaded cars, and received a daily average of 91 loaded cars. The New Haven system also delivers a small amount of traffic to the Central Vermont at Willimantic and a few cars at New London.

It does not seem necessary to discuss in detail the operation of the Central Vermont. The road has had the benefit during recent years of the expenditure of but a very limited amount of new capital. For the year ending June 30, 1922, it moved daily 76.1% of the business to be moved, and for the six months ending December 31, 1922, it moved daily 69.9%, which indicates good operation, being above the average for the United States. It has been able since

* Appendix O. Revenue Ton Miles and Passenger Miles, Central Vermont Railway, 1903-1922 (chart).

December 31, 1922, to reduce its bad order freight equipment to 5.9%.

GRAND TRUNK EXTENSION TO PROVIDENCE

In 1912 the Grand Trunk Railway began to build a line from the Central Vermont at Palmer to Providence, R. I. Work on this line was suspended within two years but not until the right of way both in Massachusetts and Rhode Island had been secured and the grading 75% completed. The opening of this line would be of real importance to New England and is especially vital to Providence and Rhode Island. Upon representation by the Grand Trunk officials that the road would be completed the legislature of Rhode Island has recently extended the Rhode Island charter and upon the same representation an extension has also been granted in Massachusetts.

IMPORTANCE OF CANADIAN ROUTES

In the tentative consolidation plan of the Interstate Commerce Commission it was not proposed that these New England lines controlled by the Grand Trunk should form a part of any consolidated American system, and in our judgment they should unquestionably remain in the control of the Grand Trunk Railway. They give New England another means of access to the West on a favorable basis of rates. To the average New Englander a shipment of freight from New England to Chicago by way of the Grand Trunk may seem roundabout but as a matter of fact this route is only

about a hundred miles longer than the shortest alternative American route (New York Central) and it is shorter than several of the routes, as for example the Erie, Baltimore & Ohio, or the Pennsylvania, regularly used by New England shippers.

Distances Boston to Chicago

New York Central—Boston & Maine, Fitch-	
burg Division	1021
New York Central—Boston & Albany	1026
Grand Trunk—Boston & Maine	1129
Pennsylvania—New Haven	1137
Canadian Pacific—Boston & Maine	1189
Erie—New Haven	1226
Baltimore & Ohio—New Haven	1248

The American lines all pass through heavy traffic points which are apt to be congested and cause serious delay in times of active movement. These standard routes are also heavy coal carriers, especially during the winter months when weather conditions are unfavorable. The Grand Trunk route reaches Chicago with a straight line haul, passing through no congested points, and does not have a heavy coal traffic thrown upon it during the winter months. The daily manifest freight express carrying packing house products leaves Chicago every day for Boston, via Grand Trunk, Central Vermont, Boston & Maine, affording the same service as the corresponding fast provision train leaving Chicago daily for Boston by way of the New York Central system.

ATLANTIC AND ST. LAWRENCE RAILROAD

The Atlantic & St. Lawrence extends from the Canadian line at Norton Mills through Island Pond, Vermont, thence diagonally across New Hampshire just north of the White Mountains into Maine to tidewater at Portland. Over this line the Grand Trunk sends a large volume of grain during the five winter months when the port of Montreal is closed and the St. Lawrence unnavigable. During the last ten years grain shipments via the Grand Trunk over this line for transshipment to ocean steamers at Portland have been as follows:

Grain Shipments from Portland

Year	Bushels
1913	12,635,868
1914	9,105,301
1915	15,772,374
1916	37,842,841
1917	12,171,779
1918	25,169,504
1919	29,527,000
1920	18,196,286
1921	18,290,116
1922	19,968,838

This is an important tonnage and it brings many steamers to Portland during five months of the year. Considerable other freight from Canada also moves over the Grand Trunk system to Portland for transshipment during the winter, and a good deal of import merchandise flows in the opposite direction. The At-

lantic & St. Lawrence produced 206,851,000 ton miles during the year ending December 31, 1922.*

It can be seen that this line is of great importance to the city of Portland and the State of Maine. It constitutes a shorter haul for the Grand Trunk than to any other available winter port. Portland by this route is 297 miles from Montreal. The Grand Trunk maintains a westbound differential rate from all points in Maine which is utilized by various industries and particularly by the large newsprint mills to reach such points as Detroit, Chicago, Milwaukee, the Twin Cities and other western points where the Maine product comes into competition with newsprint mills located outside of New England.

* Appendix P. Revenue Ton Miles and Passenger Miles, Atlantic & St. Lawrence Railroad, 1903-1922 (chart).

RUTLAND RAILROAD

This road, 413 miles in length, extends from Ogdensburg, N.Y., on the St. Lawrence River, through Rutland, Vermont, to Chatham, N.Y., where it connects with the New York Central. Its passenger trains, however, run to Troy, reaching the latter point by trackage rights over a portion of the Boston & Maine. From Rutland it has a branch to Bellows Falls, Vermont, where it connects with the Cheshire branch of the Boston & Maine running to South Ashburnham, thence via the Fitchburg main line to Boston. (Map 13.) It has 87 locomotives, 115 passenger cars, 2,289 freight cars.

It produced in the year ending December 31, 1922, 201,641,162 revenue ton miles and 43,572,947 passenger miles.*

New York Central owns 25.4 per cent of the stock of the Rutland and the New Haven Railroad also owns 25.4 per cent, so that these roads jointly exercise control.

Formerly a line of freight boats, the Rutland Transit Company, owned by the railroad, connected its western terminal on the St. Lawrence River with Chicago. Some years ago the Interstate Commerce Commission under the terms of the Panama Canal Act refused permission for the road to own and operate these steamers and the boats were discontinued. Just recently a line of privately owned boats has been put on between Chi-

* Appendix Q. Revenue Ton Miles and Passenger Miles, Rutland Railroad, 1903-1922 (chart).

cago and Ogdensburg in connection with the Rutland Railroad. This gives during the months of open lake navigation a differential rail and lake route out of New England. Freight moving from Boston via this route takes the Boston & Maine to South Ashburnham, thence over the Cheshire Line, a good single-track line but with heavy grades, to Bellows Falls where the connection is made with the Rutland. This route has never carried a large volume of traffic.

The Rutland operates also and all the year round all rail west bound differential route to the west from New England via either the Boston & Albany or the Boston & Maine in connection with the Rome, Watertown & Ogdensburg Division of the New York Central and the Michigan Central.

The Rutland is a small road. It is in good physical condition and distinctly well operated. It is enough to say that for the year ending June 30, 1922, it moved daily 78.4 per cent of all the cars ready to be moved, and for the six months ending December 31, 1922, it moved 80.0 per cent. This route naturally attracts shippers because of the differential advantage and should be encouraged especially by the Boston & Maine system because the traffic leaves the main line of the old Fitchburg Railroad just beyond Fitchburg and does not pass through the Hoosac Tunnel or over the heavily loaded portion of the Fitchburg Railroad west of the Connecticut River.

CANADIAN PACIFIC RAILWAY

The Canadian Pacific extends for a few miles into northern Vermont to Newport where it connects with the Boston & Maine system. Here the average number of loaded cars received daily from the Boston & Maine was 38 and the average number delivered 52.

The Canadian Pacific also runs east and west across the central part of the State of Maine to St. John, N. B. It brings into Maine from the Province of New Brunswick and to a less extent from the Province of Quebec a considerable tonnage of rough and semi-finished forest products which are converted in the Maine mills and reshipped to various points in and out of New England. This is an increasing traffic of considerable advantage to Maine industries and our New England railroads. This road picks up in Aroostook County eight or nine thousand carloads of potatoes. The Canadian Pacific moves these potatoes west via its direct line across the State of Maine, also in connection with the Maine Central and other New England lines into Canada and then completely around New England to a connection with the New York Central Adirondack Division, thence the New York Central carries them to New York City.

PASSENGER TRAFFIC OF NEW ENGLAND ROADS

The substantially higher percentage of passenger train miles to total train miles in New England is one of the factors which adds to the complexity of railroad operations in this region, especially on the New Haven, Boston & Albany and Boston & Maine.

In 1922, the total passenger train miles on New England railroads were 31,302,000 compared with 20,644,000 freight train miles, or 60 per cent of the total train miles.

For the United States as a whole, the passenger train miles were 530,197,000 as compared with 554,780,000 freight train miles, or 49 per cent of the total.

Revenues from passenger traffic on the railroads in New England constitute a much larger proportion of the total operating revenues than on the railroads of the United States as a whole. For the 12 months ending December 31, 1922, the total operating revenues of the railroads of the United States were \$5,617,252,656, of which \$1,076,043,334, or 19 per cent, were from passengers. In New England out of total operating revenues of \$288,961,226, \$91,963,353, or 32 per cent, were from passengers.

The relation of the passenger revenues to total operating revenues on the different New England railroads is shown in the following table (year ending December 31, 1922) :

	Total Revenues	Passenger Revenue	Per Cent Passenger Revenue to total Revenues
New Haven	\$130,037,392	\$49,443,460	38.02
Boston & Maine	82,246,900	23,154,242	28.15
Boston & Albany	32,541,903	10,719,049	32.94
Maine Central	20,387,172	4,601,186	22.57
Rutland	5,803,158	1,477,880	25.47
Central Vermont	7,626,626	1,207,452	15.83
Bangor & Aroostook	7,437,216	897,562	12.07
Atlantic & St. Lawrence	2,880,859	462,522	16.06
Total New England roads	\$288,961,226	\$91,963,353	31.83
Total United States	\$5,617,252,656	\$1,076,043,334	19.16

It will be noted that on the New Haven the revenue from passengers is the largest percentage of total revenues (38.02) of any of the New England railroads, Boston & Albany (32.94) and Boston & Maine (28.15) coming next.

GROWTH OF PASSENGER TRAFFIC

We give below a table showing the revenue passenger miles from 1903 to 1922 for the New York, New Haven & Hartford, Boston & Albany, Boston & Maine and Maine Central Railroads.

These four roads in 1922 produced 96 per cent of the passenger miles in New England:

Year	New Haven	Boston & Maine	Boston & Albany	Maine Central
1903	1,123,327,000	683,038,000	252,055,000	111,961,000
1904	1,145,051,000	681,938,000	247,710,000	115,966,000
1905	1,184,346,000	702,490,000	254,879,000	120,788,000
1906	1,268,319,000	739,951,000	264,263,000	128,307,000
1907	1,383,997,000	762,518,000	281,541,000	132,969,000
1908	1,413,626,000	790,805,000	262,798,000	138,432,000
1909	1,415,760,000	792,427,000	267,645,000	136,326,000
1910	1,521,466,000	864,871,000	300,826,000	142,224,000
1911	1,549,103,000	862,473,000	311,076,000	144,672,000
1912	1,573,146,000	880,742,000	327,704,000	161,342,000
1913	1,621,192,000	904,059,000	340,023,000	168,640,000
1914	1,620,005,000	896,081,000	353,710,000	161,051,000
1915	1,496,955,000	849,949,000	317,782,000	138,902,000
1916	1,589,142,000	798,695,000	328,112,000	144,416,000
1917	1,829,317,000	926,966,000	379,341,000	159,775,000
1918	1,843,634,000	882,382,000	375,242,000	153,393,000
1919	2,035,682,000	976,112,000	422,338,000	170,618,000
1920	2,165,185,000	1,041,735,000	455,469,000	168,146,000
1921	1,900,403,000	876,113,000	380,378,000	134,991,000
1922	1,857,933,000	847,361,000	376,178,000	128,431,000
Per cent increase				
1912 over 1903	40.0	28.9	30.0	44.1
1922 over 1912	18.1	(dec.) 3.8	14.8	(dec.) 20.4

The increase in passenger miles on the New Haven during the period 1903-1922 has been steady and the percentage of increase in 1922 over 1912, was 18.1 per cent. On the Boston & Maine there was a decrease in 1922 as compared with 1912 of 3.8 per cent and a decrease of 20.4 per cent on the Maine Central. The Boston & Albany showed an increase in 1922 of 14.8 per cent over 1912.

The cause for the falling off in the passenger business on the Boston & Maine and Maine Central is due in large measure to the increased use of the automobile not only by summer residents and tourists but also to a large extent in diminishing local traffic.

COMMUTATION PASSENGER TRAFFIC

The New Haven, Boston & Maine, and Boston & Albany handle a very large commutation business. For the year 1922 the division of passenger miles and passenger revenue between commutation and all other passengers is given in the following table:

Passenger Miles	All Railroads of United States	New Haven	B. & M.	B. & A.
Commutation	\$6,131,607,000	\$756,860,000	\$351,286,000	\$123,303,000
All other	29,375,615,000	1,101,073,000	512,570,000	252,875,000
Total.	\$35,507,222,000	\$1,857,933,000	\$863,856,000	\$376,178,000
Per cent commutation to total passenger miles	17.27%	40.7%	40.6%	32.8%
Passenger Revenue				
Commutation	\$67,504,386	\$8,810,704	\$4,343,402	\$1,539,505
All other	1,007,757,837	40,632,756	18,466,169	9,179,545
Total.	\$1,075,262,223	\$49,443,460	\$22,809,571	\$10,719,050
Per cent commutation to total Passenger Revenue	6.28%	17.8%	19.0%	14.4%
Revenue per Passenger Mile				
Commutation	\$.01101	\$.01164	\$.01236	\$.01249
All other . . . . .	.03431	.03690	.03603	.03630
Average all Passen- gers . . . . .	.03028	.02661	.02640	.02849

From this table it appears that commutation passenger traffic produces 40.7% of the total passenger miles on the New Haven and but 17.8% of the passenger revenue; on the Boston & Maine 40.6% of the total passenger miles are produced by commutation passengers and 19% of the passenger revenue. For the Boston & Albany the commutation business is some-

what less important, producing 32.8% of the total passenger miles and 14.4% of the passenger revenue. The revenue received by each of these roads per commutation passenger mile in 1922 was:

New Haven	\$.01164
Boston & Maine	.01236
Boston & Albany	.01249

Although the difference in average rate between the New Haven and Boston & Albany seems very minute, yet if the New Haven in 1922 had realized the average Boston & Albany rate it would have added \$643,331 to its gross passenger income last year.

We believe that it is a serious question whether the commutation traffic is today paying its fair share of the cost of the transportation service rendered by these three roads.

MAIL AND EXPRESS

In addition to revenue from passenger traffic, passenger trains on the New England railroads earn substantial gross revenues by carrying mail and express.

The following table shows the revenue from mail and express on the New England railroads for the calendar year 1922:

	Mail	Express
New York, New Haven & Hartford	\$1,523,311	\$4,961,182
Boston & Maine System	1,049,737	3,049,491
Boston & Albany	770,074	1,301,742
Maine Central	357,045	672,545
Rutland	127,473	219,088
Central Vermont	115,541	189,805
Bangor & Aroostook	87,479	109,166
Atlantic & St. Lawrence	37,449	43,436
Total	\$1,068,109	\$10,546,455

MOTOR TRUCK TRANSPORTATION

Since the war especially the motor truck has become of great importance in New England transportation. The Committee secured the services of Austin B. Fletcher, formerly Chief Engineer of the Massachusetts State Highway Commission, and until recently chief engineer of the Highway Commission of the State of California, to investigate the problems relating to truck transportation. Mr. Fletcher's report shows that there is as yet a dearth of reliable statistics, either as to tonnage carried by trucks or as to the cost of operating trucks.

In 1922 there were 660,845 automobiles and 128,272 trucks registered in the New England states. Of the trucks, 95,433 were of one ton or less capacity, and 11,615 were of three tons and over.

In New England there are 87,000 miles of highway outside the city limits, of which 10,160 miles are now administered by the state highway departments of the various New England states. Only 1,487 miles of these state highways have been improved with Class A surfaces (concrete or bituminous macadam), 1,242 miles have been improved with Class B surfaces (water bound macadam), 6,169 miles are rated as Class C roads, being surfaced with gravel or sand, or clay, or merely graded, but with drainage installed. This statement shows that the New England states have much ahead of them in building permanent highways to take care of the automobile traffic and more espe-

cially of the heavy trucks. Since the inauguration of state highway control in the New England states in 1893 the total expenditure for construction, and for maintenance and reconstruction of state highways has been \$157,000,000, of which \$8,655,975 represents the amount received as Federal aid,* under the terms of the Federal Road Act.

The expenditures of the New England states for state highways have shown a large increase during the last few years.

Average, 1915-1919	\$9,152,988
Expended, 1922	23,885,192

This total of \$23,885,192 is far from representing New England's whole highway bill. In Massachusetts alone it is estimated that the expenditure of the cities and towns upon their highways is in excess of \$25,000,000 annually; so that if the cities and towns of the other five states all put together spend half as much as Massachusetts our total annual New England highway bill is running at \$60,000,000 per annum.

The annual fees for the heavier trucks in Maine, Vermont, Massachusetts and Connecticut are as follows:

	Maine †	Vermont	Massachusetts	Connecticut
Capacity				
3 ton	\$73.33	\$75.00	\$30.00	\$70.00
4 ton	106.67	100.00	40.00	137.50
5 ton	146.66	125.00	50.00	187.50

* This Federal aid of \$8,655,975 represents but a small part of the money taken through Federal taxes from New England for Federal road grants.

† In Maine trucks on pneumatic tires pay 25% less but there are probably few heavy trucks with inflated tires.

Rhode Island and New Hampshire are not included above as fees are based on gross weight instead of capacity, but in these two states the average fees received for trucks of three tons or more in 1922 were:

Rhode Island	\$50.00
New Hampshire	121.41

It seems quite clear that in Massachusetts, at least where fees for trucks of 3, 4, and 5-ton capacity are only \$30-\$40-\$50, respectively, the railroads are subject to what amounts to state subsidized truck competition.

If a five-ton truck is permitted to roam over Class A, B, and C state highways for a week, it seems quite clear that it will inflict an amount of wear, tear and damage for which the \$1 it pays into the state treasury is no compensatory return. In one week in the spring when the frost is working out of the road foundation much more damage is often undoubtedly done than the whole year's fee of \$50.00 can repair.

If to prevent this road destruction by the big trucks the Class A road with concrete top and heavy supporting foundation is built, a type of road not needed for passenger vehicles and light trucks, then the state is furnishing the truck, for an almost nominal consideration, a right of way well up to the average expense of building a large part of the railroad mileage of this country. If a gasoline tax of 2 cents a gallon be added to the \$50.00 yearly fee it still means undoubtedly a considerable state subsidy for the truck. A heavily loaded five-ton truck going twenty-six miles over a state highway from Lowell to Boston would use,

we suppose, five or six gallons of gasoline, which would give the state the rather nominal sum of ten or twelve cents.

We are not arguing either for or against the present state highway policy in regard to trucks but merely pointing out that for the movement of merchandise the railroads are of vastly greater importance to our industrial welfare than trucks, and yet we are playing favorites. We are speaking harshly to our oldest born, on whom we are really dependent, and at the same time lavishing caresses on our youngest born, whose push can hardly take the family carriage out of the door yard.

NEW ENGLAND PORT DEVELOPMENT

DEVELOPMENT OF WATER TRANSPORTATION FUNDAMENTAL

We have already pointed out the enormous advantage to New England of her coast line and the excellent harbors, large and small, dotted along the coast, affording good protection and easy access to the sea, and we have called attention to the fact that a large part of our population live immediately adjacent to the sea and that more than seventy per cent of our people and probably a larger proportion of our industries are within fifty miles of the seaboard.

We have also pointed out that the movement through our water gateways (26,158,573 tons for the calendar year 1921) comes within sight of balancing the all-rail movement through our rail gateways, which for the year ending June 30, 1922, was 31,500,000 tons, and that the doubling of the cost of rail transportation within recent years has greatly increased the relative importance to New England of her location by the sea.

We have also shown that the opening of the Panama Canal has brought New England nearer to the great and flourishing population of the Pacific Coast than any of the manufacturing centers in the Mississippi or Ohio valleys or on the Great Lakes, or western New York or western Pennsylvania.

NEW ENGLAND RAILROADS NEED MORE EXPORT FREIGHT

If any of our New England ports like Portland, Boston, Providence or New London can offer increasing advantages which will attract the outgoing grain, provisions, or other commodities of the states beyond the Hudson and incoming merchandise from overseas, it will be not only a local benefit but also a help in sustaining our New England railroads. "Beyond to beyond" business is badly needed. Take away from any of the other ports on the Atlantic or Gulf coasts the export of grain, whether New York, Philadelphia, Baltimore, Norfolk, New Orleans or Galveston, and not only will the ports be badly hurt but the railroads back of them will see their revenues materially decreased.

Bulk cargo for outgoing transatlantic steamers is today critically needed to sustain the port of Boston. One of the large transatlantic lines tells us that they expect shortly to make Boston merely a port of call for their incoming steamers en route to New York or Baltimore, and another long established transatlantic line tells us they are having the utmost difficulty in maintaining their line to Boston owing to the impossibility of securing return cargoes.

Undoubtedly the disabilities of some of our railroads have been an obstacle. If these can be removed, as we have no doubt they can if New England decides to face the problem, there still remains the obstacle presented by the lower rates for export grain in favor of Baltimore and Philadelphia.

This last obstacle may be removed by a decision of the Interstate Commerce Commission in the pending port differential case permitting our New England railroads to get a supporting share of this traffic.

ENLARGEMENT OF WELLAND CANAL

We are advised that within four years the enlargement of the Welland Canal, connecting Lake Erie with Lake Ontario, will be completed so as to permit the standard grain carrying boats to reach Oswego on Lake Ontario, and somewhat smaller vessels to reach Ogdensburg on the St. Lawrence River, a short distance below the foot of Lake Ontario.

This will transfer the foot of the Great Lakes from Buffalo to Oswego. It will bring much traffic to Oswego which will be 121 miles nearer the port of New York than Buffalo. It will also bring the big lake carriers at Oswego some thirty miles nearer to Boston than to Baltimore. Oswego is a good winter port and the grain which remains in these lake carriers at the end of their last loaded trip to Oswego will continue to furnish traffic through the winter months just as is now the case with Buffalo.

Four years from now export grain can move 54 miles from this new foot of the lake port, Oswego, by the New York, Ontario & Western to its junction with the West Shore or New York Central main tracks in the Mohawk valley, then 122 miles to a connection with the Boston & Albany, or 97 miles to a connection with the Boston & Maine at Rotterdam Junction, or the grain can move all the way to Rotterdam Junction or

Albany by New York Central tracks which reach Oswego.

When the enlargement of the Welland Canal has been completed grain can move by water also to Ogdensburg and thence over the Rutland railroad to Belows Falls and so by the Cheshire and Fitchburg Division of the Boston & Maine to the Boston elevators.

This Rutland route has been in operation for many years as a lake and rail route for general merchandise moving to or from New England. The Rutland railroad used to be more active in carrying traffic back and forth between New England and the West when it owned and operated its own lake steamers but after the passage of the Panama Canal Act the Rutland was obliged to sell its steamers. A separately owned line of steamers has been put on within a few weeks but it is hoped this old New England lake route may again be restored to full vigor by permitting the Rutland to operate as the water extension of its line its own dependable and closely coördinated steamers. Experience seems to have demonstrated that cutting off the Rutland steamers benefited no one except possibly the New York Central and that to an entirely negligible extent.

The Rutland railroad is in good condition and when the Welland Canal has been enlarged it is hoped this Lake-Rutland-Boston & Maine route can be utilized to feed the port of Boston a limited perhaps, but at any rate, a dependable flow of grain.

ADVICE OF EXPERT ON PORT DEVELOPMENT

This Committee has not felt it could undertake a detailed study of the New England ports, but owing to the interlocking of our ports and railways it sought the advice of Mr. Frederick W. Cowie of Montreal. Mr. Cowie is an engineer who for many years has devoted himself to the study of port development. He is familiar by study on the ground with the principal ports of Europe and this country. He has been frequently called in as a consulting engineer and port expert in regard to various ports in this country. He was already quite familiar with the port of Boston. The development of the present great port of Montreal from a port of limited facilities and unimportant traffic sixteen years ago to a port of first-class modern facilities which last year exported 153 million bushels of grain, has been under his immediate direction. Moreover, until his resignation a short time ago, he has been in active operating charge of these facilities at Montreal. They have been constructed with the aid of public credit, but they have at all times proved profitable and borne all expense of operation, upkeep, interest upon borrowed money, and sinking funds for the retirement of the debt.

Mr. Cowie visited Portland, Boston, Providence and New London.

PORTLAND

He reported the large volume of grain brought to Portland by the Grand Trunk during the winter

months, furnishing the bulk of Portland's across-sea traffic, as flowing smoothly and economically. The two Grand Trunk elevators at Portland have a holding capacity of more than two million bushels and can unload promptly two hundred cars in a day. The new state pier just completed, constructed at a cost to the state of approximately \$2,000,000, constitutes a notable addition to Portland's port facilities and seems to provide adequately for all traffic now in sight.

Portland has as deep a harbor (35 ft.) as any port on the Atlantic Seaboard with but one exception; the entrance to the harbor is along a well defined channel running in a nearly straight line, making it easily accessible and nearer Europe than any other Atlantic port.

PROVIDENCE

Providence harbor is 27 miles from the open sea with a channel 600 feet wide and 30 feet of water at low tide. It reaches the heart of Rhode Island's manufacturing area. The State of Rhode Island has built a modern well-equipped pier and the city of Providence has also constructed a pier and has under way further port developments. The State of Rhode Island has spent \$667,604 on the development of the port and the City of Providence \$867,747 and the Federal Government \$3,266,393.

In gross tonnage, foreign and coastwise, the port of Providence ranks second to Boston in New England. Unlike Portland or Boston, its foreign commerce is not large except for a large tonnage of fuel oil from Mexico.

Providence is served by the Fabre Line with direct sailings to Marseilles, Genoa, Naples and other Mediterranean ports.

The coastwise movement of coal is heavy and there are numerous coastwise lines serving the great industrial district of which Providence is the center. There are three lines between Providence and New York and the Merchants and Miners Transportation Company gives service to Philadelphia, Norfolk and Baltimore. The port of Providence is well equipped, having a large number of private piers in addition to the state pier and the municipal pier, and the city has recently appropriated \$500,000 for further improvements.

NEW LONDON

New London has an excellent natural harbor and the State of Connecticut has built a modern pier which is already self-supporting. Further development, including a grain elevator and additional piers, are being projected. New London has three lines to New York, —one maintained by the New England Steamship Company (a subsidiary of the New Haven railroad), the Thames River Line, and the Central Vermont Steamship Company, a part of the Grand Trunk railroad's transcontinental service, giving that system its access to New York City.

MODERN PORT DEVELOPMENT

A modern port should be developed and organized along the line of any modern industrial machine. In a manufacturing plant putting things on the floor to

pick them up again gets you nowhere and is a sign of senescence in the management. If the man operating the tool has to stoop to the floor or in fact "reach" in any direction for the next piece it may easily increase the cost of the operation ten or twenty or thirty per cent and destroy all chance of profit.

Just so with the industrial machinery of a port. The port facilities should permit a car of incoming grain, no matter by what railway it arrives, to reach any grain elevator serving the port by the simplest possible switching movement in hardly more than minutes of time rather than hours or the days sometimes now required. With a modern grain elevator a car can be unloaded in ten minutes and a train in a few hours and then the empty cars started back for the next load. With merchandise the same principles apply except that the cars of merchandise arriving at the different rail heads are not destined for one or two points on the water front but in the ideal port should be able to move promptly and easily along the whole water front to the receiving shed directly opposite the desired steamer.

This is the whole story of the ideal port. In New York an immense amount of lightering is performed and considerable trucking to connect the rail heads with the individual steamers. This does not represent an ideal arrangement at all but only an enormous bill for connecting the rail heads with the ship side, levied upon the tonnage passing through the port of New York. The enormous amount of trucking in New York to take local merchandise to the steamer side and the long lines of trucks waiting at the ferries for passage

to Brooklyn, Jersey City or Hoboken also present a striking picture of port facilities not to be classed perhaps as bad, but ten thousand miles short of the ideal.

BOSTON

Since 1859 the Commonwealth of Massachusetts has expended in the development of the port of Boston \$20,164,125.* During the war the government built the Army Base at South Boston at a cost of approximately \$26,000,000. The Commonwealth also has built within recent years the Commonwealth Pier. Both of these great piers constitute sound and useful additions to the port facilities of Boston. The Commonwealth Pier has been utilized to its capacity during the last year and also the large portion of the Army Base Pier not reserved by the government for its own use.

It has been stated by many who have studied the development of the port of Boston that there should be a connecting railroad built outside of the city limits.

THE COWIE PLAN

Now turning to the plan, presented to us by Mr. Cowie which it is proper to say he describes as the result of a reconnaissance, as he was able only to devote a little over two weeks to his study, it will be found that it is so simple that the map makes it easily understood. (Map 16.)

The center of Boston's present port activities Mr. Cowie has pointed out is where the Charles and Mystic

* Appendix R. Expenditures of Commonwealth of Massachusetts on Port of Boston 1859-1922.

Rivers coming together make the inner harbor. The old-fashioned wharves along the front of the city proper, which are too short for large steamers, he proposes to fill in to a line drawn along the outer edge of the piers, bulkheading this line so that steamers will come alongside and not enter a slip.

Then starting from the big terminals in South Boston, constituting the rail heads of the New Haven Railroad and the Boston & Albany, he proceeds with a double track railroad crossing Fort Point channel and thence along the new land created by the filling in of the old wharves, then crossing the Charles to a point where connection is established with the rail heads of the Boston & Maine system, including the old Fitchburg, Boston & Maine, Boston & Lowell and Eastern Divisions, then back of the Navy Yard upon a raised structure to the big Mystic Wharf terminal of the Boston & Maine system where rail connection is again established; thence across the Mystic River through a corner of Chelsea, and so along the water front of East Boston where there is ample opportunity for as many large piers as the port may require for many years. Then along the base of the present East Boston piers of the Albany Railroad to a connection with the Grand Junction Railway and picking up any traffic which may come by the Eastern Division of the Boston & Maine directly to East Boston, and establishing connection with the present East Boston freight yard of the Boston & Albany and the East Boston freight yard of the Boston & Maine system on the eastern side of East Boston.

Mr. Cowie has pointed out also that by means

of an elevated structure a wide new motor roadway circling the port of Boston can well be constructed over this new belt line. Besides the two main tracks it will be advisable to construct four tracks over portions of this route.

This development is further illustrated by a cross section of the city proper water front. (Map 17.) This shows a steamer in position alongside the bulkhead, then the receiving and collecting warehouse which should be established always for the temporary storage of cargo arriving and the collection of cargo for a ship due. Then comes the railway with switch tracks leading directly into the receiving and collecting warehouse, and overhead is the truck roadway feeding into the second story of the receiving and collecting warehouse. Next will come such permanent warehouses as the port may need and it shall seem desirable to construct either with private capital or probably better built by port trustees and leased. Next comes Atlantic Avenue.

It will be seen that Mr. Cowie's plan does away entirely with any necessity for the enormously expensive, both to build and to operate, proposed new belt railway outside of Boston.

Mr. Cowie's plan joins all the existing rail heads of our railroads serving Boston; it permits a car to be shifted almost in a few minutes from any rail head to the existing grain elevators, or, if containing merchandise, into the receiving warehouse directly opposite the desired steamer. It also permits merchandise handled by truck to run up one of the inclines or ramps of the overhead roadway and deliver its merchandise directly

into the receiving warehouse right opposite the desired steamer. It brings the business of the port close to the city, the custom house, and the business of the city with which it necessarily has many relations.

The elevated roadway can be built wide enough to furnish Boston with a new circular motorway, and the advantages of this are so obvious that they do not need explanation.

NECESSITY FOR COORDINATION OF BOSTON TERMINALS

Our advices are that at present there is a lack of cooperation in the service of the port or perhaps it is fairer to call it coordination between our different railroads. A steamer expecting cargo by different railroads today is seriously delayed and embarrassed by this lack of coordination.

If the people of Massachusetts prefer a meat diet to gruel, and intend to take hold of their chief port in a vigorous, constructive manner, we suggest they should go further than the above plan. All port experience here and the world over indicates that for the proper development of a modern port there should be one general unified terminal control. It follows from this that all the railroad property within a certain radius from the center of the city, as illustrated by map 16, should be taken over by terminal trustees backed by state credit.

These trustees would necessarily attack the problem presented by the four separate antiquated freight yards of the Boston & Maine Railroad and from time to time upon a conservative program carry out other

plans for the improvement of the Boston terminals. This unified terminal plan would also have the advantage resulting from the purchase of these terminal properties of providing a substantial fund for each of our existing railroads to be expended under some form of public control, referred to later, for the purchase of locomotives or for other capital needs of public concern.

TENTATIVE CONSOLIDATION PLAN OF THE INTERSTATE COMMERCE COMMISSION

The consolidation section of the Transportation Act of 1920 requires the Interstate Commerce Commission to set up a tentative plan for the consolidation of the railroads of this country into "a limited number of systems." In accordance with this mandate the Commission in August, 1921, issued a tentative plan for consolidating the railroads into nineteen systems (No. 12964; 63 I.C.C. 455). As an appendix to the tentative plan the Commission published the report of Professor William Z. Ripley, of Harvard University, who had been engaged to make a study of possible consolidations. Following the publication of its tentative plan, the Commission in accordance with the provisions of the statute has held numerous hearings in Washington and elsewhere, at which the carriers and others interested have appeared. Further hearings, including probably one or more in New England, are to be held in different parts of the country. At the conclusion of the hearings the statute lays upon the Commission the duty to suggest a plan for consolidation of the railway properties of the country.

ALTERNATIVE NEW ENGLAND PLANS

In its tentative plan the Commission assigns the Boston & Maine, Maine Central, Bangor & Aroostook, as well as the Rutland, to the New York Central, System

No. 1, and the New Haven, including the Central New England, to the Baltimore & Ohio, System No. 3. In making these suggestions the Commission says, "Professor Ripley rejects the trunk line treatment of the New England roads, but we present this alternative with a view to developing the situation upon hearing."

The arrangement suggested by the Commission in place of the trunk line alternative, is a consolidation of the New England roads named above (except the Rutland) together with the New York, Ontario & Western, and two small "bridge lines," the Lehigh & Hudson River and the Lehigh & New England, the entire group being designated as "System No. 7—New England."

Besides the suggested trunk line alternative, the Commission submits a further alternative to "System No. 7—New England" by adding to the group of roads named in that system the Delaware & Hudson, the Ulster & Delaware, the Delaware, Lackawanna & Western, the Buffalo, Rochester & Pittsburgh, the Pittsburgh & Shawmut, and the Pittsburgh, Shawmut & Northern, this alternative and enlarged group being called "System No. 7 A—New England-Great Lakes."

To the peculiar conditions and problems of the New England situation, Professor Ripley devotes his entire Chapter II (63 I.C.C., 509) of his report to the Commission. He first takes up for consideration a trunk line consolidation for the New England railroads, and proposes that the Boston & Albany shall remain as part of the New York Central system.

He then considers various suggestions for turning over the New Haven system, south of the Boston &

Albany, to some trunk line, and then similar suggestions for turning over the Boston & Maine and other New England roads, north of the Boston & Albany, to some other trunk line.

TREATMENT OF THE NEW HAVEN UNDER TRUNK LINE PLAN

Of the three plans considered by him for consolidating the New Haven railroad with either the Pennsylvania, the Baltimore & Ohio (map 18), or a new trunk line system to be created by joining the Lackawanna & Nickel Plate, Professor Ripley seems to prefer, if there is to be a consolidation of the New England railroads with the trunk lines, joining the New Haven to the Baltimore & Ohio. We can hardly agree with this. This consolidation is also the Commission's trunk line alternative "System No. 3—Baltimore & Ohio."

COMPARISON BETWEEN ALLOCATING THE NEW HAVEN TO (1) THE BALTIMORE & OHIO OR (2) THE PENNSYLVANIA

The greatly predominant interchange of traffic between the New Haven and the trunk line systems is with the Pennsylvania. This is not simply a railroad matter; it means that the New England people and the people served by the Pennsylvania system have found that under economic conditions and the inherent essence of things as they actually exist, they have business interests in common. No arbitrary consolidation between the New Haven and the Baltimore & Ohio system will change this state of affairs. The traffic interchange between the people reached by

the New Haven system and the people served by the Baltimore & Ohio is relatively small. If there is to be a trunk line consolidation with the New Haven system, the existing current and movement of merchandise point inevitably to the Pennsylvania system. To consolidate the New Haven with the Baltimore & Ohio would seem to fail to carry out a declared intention of the Transportation Act which provides that "Wherever practicable the existing routes and channels of trade and commerce shall be maintained." These words not only express a clear direction inserted in the Act but they express a sound principle to be observed in regard to consolidation of different railroads.

COAL MOVEMENT

Professor Ripley speaks of the rich coal fields tributary to the Baltimore & Ohio system. The Baltimore & Ohio railroad does not serve the hard coal fields of Eastern Pennsylvania. It touches the Somerset County and Connellsville bituminous coal district of Western Pennsylvania, but no hard coal and comparatively little soft coal reaches New England all rail by way of the Baltimore & Ohio from these Pennsylvania fields. New England does take a large tonnage of bituminous coal from Pennsylvania, but the coal mainly moves to New England over the Pennsylvania and New York Central railroads. The Baltimore & Ohio, therefore, plays but a minor and unimportant part in the movement of all rail coal to New England.

Taking up now the rich fields of West Virginia

where the Pocahontas, New River, Fairmont, Kanawha, and other justly celebrated steam coals are to be found, these fields ship a very heavy tonnage of coal to New England for our railroads, public utilities, manufacturers and other consumers of steam coal. They are an important and steadily growing source of supply; but the coal moves and should continue to move practically wholly by the tidewater routes, first by rail down to the seaboard at Hampton Roads or from the Fairmont field to Baltimore, Philadelphia or New York where the coal is dumped into vessels and is transported to New England. The Baltimore & Ohio takes part in this tidewater movement by bringing to ship side at Baltimore a large amount of coal destined for New England.

The Baltimore & Ohio all rail route to New England from the West Virginia field is via the Shippenburg gateway, then to Harrisburg, then east to Easton, Pennsylvania, then over the Lehigh & Hudson River railroad to the New Haven gateway at Maybrook. This is a long, circuitous, expensive rail route.

A car loaded in the West Virginia field of the Baltimore & Ohio for a New England destination probably requires on the average a month to make the round trip and in winter usually considerably longer. By this route the average coal car would probably make less than three round trips during the four months of winter.

Pennsylvania and the adjoining states of New Jersey and New York are states of immense industrial activity and are inevitably going to need a constantly rising percentage of the near-by Pennsylvania coal. New

England must look more and more to the West Virginia water-borne coal.

A car loaded with coal on the Virginian railway, Chesapeake & Ohio or the Norfolk & Western, which all directly tap these Southern West Virginia fields, reaches one of the Hampton Roads ports probably on the average in three days. At the steamer pier the car is turned upside down and the coal dumped into the hold of a New England vessel and the car returns immediately to the mines. This is a shuttle movement on these railroads especially designed, equipped and operated to facilitate the tidewater coal movement and unencumbered with any large volume of general merchandise. It takes a collier but a few hours to load and only a limited number of days or rather hours to reach its New England destination, whether it be Providence, Fall River, New Bedford, Boston, Beverly, Portsmouth, Portland, or Searsport. As the major portion of the coal consumption in New England is on the sea front or close by, the time consumed at the New England end for rail transportation is either nothing or represents a minimum haul. It is of significance that three new public utility power plants of large capacity are now in process of erection on tidewater, —the Connecticut Light and Power Company at Devon, the Hartford Electric Light Company at Hartford, and the great new power plant of the Boston Edison Company at Weymouth. These plants all expect to use West Virginia water-borne coal and will transmit their power derived from this coal farther and farther back from the shore line. This development is of great economic importance. It

will probably lead to a material reduction in the size of New England's coal bill.

New England (map 19) was constantly advised during the war, when economy in the use of cars and transportation was of national moment, that it was almost a crime to try to get coal from the West Virginia fields to New England by the all-rail route. It may not approach a crime today but it remains a slow, wasteful method of transporting coal to New England.

COMPARATIVE NEW HAVEN INTERCHANGE WITH PENNSYLVANIA AND BALTIMORE & OHIO

The daily interchange of cars between the New Haven railroad and the Pennsylvania system via the Hell Gate bridge route, jointly owned by the Pennsylvania and New Haven, amounted to an average of 589 loaded cars a day during 1922 — by far its largest interchange with any connecting road. Besides this the New Haven receives at Maybrook a limited tonnage originating on the Pennsylvania railroad.

The number of cars interchanged between the New Haven and the Baltimore & Ohio system is difficult to obtain because the New Haven has no physical connection with the Baltimore & Ohio system. However, the President of the New Haven submitted a statement of a Typical Day's Interchange in detail which showed that on Oct. 18, 1922 (the day selected as typical), the New Haven received forty-six loaded cars originating on the Baltimore & Ohio and delivered forty-seven for destinations on the Baltimore & Ohio. The interchange of the New Haven, therefore, with the Pennsylvania,

is clearly many times the interchange between the Baltimore and Ohio and the New Haven.

The main interchanges of the New Haven with lines west of the Hudson River for the year ending June 30, 1922, counting movement both ways, were (in car-loads and empties) :

	Loaded Cars	Total Cars
Pennsylvania	214,942	336,271
Lehigh & Hudson River	101,110	155,832
Lehigh Valley	63,107	104,327
Erie	60,067	105,072
Central Railroad of New Jersey	55,078	82,673
Lehigh & New England	29,587	60,272
New York Central	13,822	37,042
New York, Ontario & Western	15,053	26,563
Long Island	14,715	23,821
New York Terminal Companies	16,437	19,154
Total	583,918	951,027

CONSOLIDATION WITH BALTIMORE & OHIO NEITHER LOGICAL NOR NATURAL

As a through connection for the New Haven system to Chicago the Baltimore & Ohio route would be 105 miles longer than the Pennsylvania route.

The historical and natural port constituting now and always the focus of the Baltimore & Ohio's deep water activity is Baltimore. As compared with Baltimore its relation to the port of New York has always been incidental and unimportant, and to try and force the interests and activity of the Baltimore & Ohio management still further east beyond the port of New York into New England seems to us unlikely to be a virile success.

It is true that the tentative plan of the Commission suggests that the proposed Baltimore & Ohio system shall be augmented by the addition of the Philadelphia & Reading and Central Railroad of New Jersey. Both of these roads interchange with the New Haven, although in the case of the Philadelphia & Reading there is no direct connection, the freight moving via the Central Railroad of New Jersey, thence via the Lehigh and Hudson River or the Lehigh and New England to the New Haven at Maybrook. The Central of New Jersey moves freight from the territory west of Easton via the Lehigh and Hudson to Maybrook, and freight from the territory east of Easton is interchanged by float in New York harbor to the New Haven at Harlem River. The tonnage received from these roads is mainly anthracite coal. (Map 20.) Their inclusion with the Baltimore & Ohio does not change the situation, for the interchange of the New Haven with the Pennsylvania is much greater than the combined interchange with the Baltimore & Ohio, Reading, and Central Railroad of New Jersey.

It also seems to us unquestionably true that the Baltimore & Ohio system is not in a position (whether combined with the Reading or not) to carry the financial load involved in the acquisition of the New Haven.

POSITION OF BALTIMORE & OHIO AS TO CONSOLIDATION WITH NEW HAVEN

The position of the Baltimore & Ohio railroad in regard to the suggestion to include the New Haven railroad in the proposed Baltimore & Ohio system, as expressed before the Interstate Commerce Commission

at its hearing in Washington on May 17, was as follows (Official Statement of Daniel Willard, President Baltimore & Ohio railroad, page 16) :

“ We are of the opinion that the New York, New Haven and Hartford railroad should not be included in the Baltimore and Ohio-Reading system, but that the properties of that company in conjunction with all other New England railroad properties East of the Hudson River should be consolidated into what might be termed a New England Regional Group to be held and operated as a distinct unit interchanging traffic freely and without prejudice with the several Trunk Line systems and with the Canadian railroads.

“A statement is attached, marked Exhibit 20, showing the approximate tonnage interchanged between the several New England Lines and their various connections to the North and East, and particular attention is called to the fact that each of the several Trunk Lines has an extensive interchange. While the Baltimore and Ohio does not have a direct interchange, it participates substantially in the traffic through indirect connections notably via the Central Railroad, Reading, etc.”

CONSOLIDATION WITH PENNSYLVANIA NATURAL AND LOGICAL

A consolidation of the New Haven with the Pennsylvania seems to us the natural and logical trunk line consolidation for the New Haven railroad if there is to be a trunk line consolidation. We do not understand that the Pennsylvania railroad is anxious for

this consolidation, certainly not under present conditions, as it is not eager to assume the heavy financial burden of the New Haven. The President of the Pennsylvania railroad in his formal printed statement presented before Commissioner Hall at the Washington hearing May 16, speaking of the New Haven railroad, said (pp. 19-21) :

“Our long established mutual relations have built up a large exchange traffic, and as a consequence well established commercial relations on a large scale have resulted between both territories, so that any proposition to assign the New Haven and its traffic to any other System would be a public calamity, as well as hurtful to the Pennsylvania System. It is true, as Prof. Ripley points out, that the New Haven’s financial condition is not strong, and under existing limited net earnings the Pennsylvania could not carry its own burdens and financially carry the New Haven as well. However, under the proposed Consolidation Plan, which requires valuation and assumably re-capitalization of the Consolidated Systems, the financial questions must be faced, and if adjusted in other cases, similar action will be taken for New Haven, and in that event I am sure it will be found that all relationships, public and corporate, will unite the New Haven with the Pennsylvania System as the best method of giving the broadest transportation service. Even if that result should be brought about, the requirements of the territory demand a separate operating organization dealing with New England problems right at home. Further, I cannot see how the New Haven could be assigned to another system without assigning with it

the guaranties, traffic relations and the important facilities which the Pennsylvania provides." . . .

" We realize that the officers of the New Haven System have been making a brave struggle to meet conditions in their territory, notwithstanding they must be short of both facilities and equipment, because of their weak financial condition; and are, no doubt, hurt by the improved highways and the use of motor trucks, which must result in making many of the branch lines unprofitable. To the extent of our resources we have always made the New Haven very favorable allowances out of the through rates, and we assist in supporting the New York Connecting Railroad which is used chiefly for traffic to and from the New Haven Railroad. Until the financial difficulties of this situation are cleared up, and without any knowledge of what the New Haven officers may recommend to the Commission, I feel that the New Haven Road should remain separate under an independent management, exchanging traffic freely with the various connecting trunk lines."

Consolidation with the Pennsylvania railroad does not seem, therefore, to offer an immediate harbor of refuge for the savings banks and insurance companies and small investors of New England who are such large holders of the New Haven bonds, nor for the distressed stockholders. Under the terms of the Transportation Act of 1920, no consolidation can be made compulsory. The Pennsylvania railroad must first be persuaded to desire to assume the heavy financial burdens involved in the acquirement of the New Haven railroad, and this seems a long way off. (Map 21.)

THE PROPOSAL TO ALLOCATE THE NEW HAVEN TO A
POSSIBLE DELAWARE, LACKAWANNA & WESTERN
—NICKEL PLATE CONSOLIDATION

Since the suggestion in Professor Ripley's report that the Nickel Plate, the Delaware, Lackawanna & Western, and the New Haven might be consolidated, the controlling interests of the Nickel Plate railroad have made application to the Interstate Commerce Commission to consolidate with the Lake Erie & Western and the Toledo, St. Louis & Western (The Clover Leaf) and the same interests have also recently purchased control of the Chesapeake & Ohio which has a first class deep-water harbor at Hampton Roads. As the suggestion of combining the New Haven with the Nickel Plate system seems to have received no support from any quarter, it is perhaps not necessary for us to discuss it further.

TRUNK LINE CONSOLIDATIONS FOR NORTHERN
NEW ENGLAND

Turning now to the consolidations proposed for the northern New England lines and taking up first Professor Ripley's faintly suggested consolidation of the Boston & Maine railroad with the Erie, which apparently he discusses merely to show that it has not been overlooked, it seems almost enough to say that the financial situation of each of these roads is such that together they will constitute but a tottering system which probably would soon fall because of financial weakness.

The pith and marrow of the Transportation Act of

1920 is to set up a limited number of systems combining financially weak roads with financially strong roads so that when the consolidations have been accomplished we shall have systems which can bear with substantial equality the enforcement of the "uniform rates" contemplated by the Transportation Act without wrecking a large part of our railroad mileage and perhaps at the same time unduly enriching, or at least unnecessarily enhancing the cost of transportation on, the rich and strong roads.

It is intimated in Professor Ripley's report that perhaps the Delaware & Hudson might be combined with the Boston & Maine and the Erie Railroad; but the Delaware & Hudson is a small system, and while with the assistance of its controlled coal mines it is reasonably profitable, if it tried to uphold financially these two other systems it would be a case of an elephant sitting on a pancake. The President of the Delaware & Hudson made this perfectly clear in his statement before Commissioner Hall. There is no gainsaying it.

THE PROPOSAL TO ALLOCATE NORTHERN NEW ENGLAND RAILROADS TO THE NEW YORK CENTRAL

Undoubtedly the only trunk line consolidation worthy of serious consideration in the case of the Northern New England lines is the consolidation proposed with the New York Central system. This is the Interstate Commerce Commission's suggested tentative alternative, in its "System No. 1—New York Central" for a New England system, and presented to de-

velop "the situation upon hearing." If the New York Central chooses to support the financial load involved, there seems to be no reason to doubt its ability. If the New York Central is to consolidate with the Boston & Maine, and if the purpose of Congress is to be carried out in its declared desire for consolidation of the railroads of the United States into a "limited" number of great systems, there exists no reason to exclude the Maine Central and the Bangor & Aroostook in this consolidation. The Commission, indeed, includes them in its tentative System No. 1 just mentioned above. These two roads if left outside the pale, whether judged by mileage or gross receipts, would constitute hardly more than toy railroads compared with the great systems contemplated by the Transportation Act.

Under the conditions as they exist today the New York Central by means of its lease of the Boston & Albany Railroad reaches directly across New England from east to west. (Map 22.) We can all remember that some years ago when the then directing officers of the New York Central system failed to exhibit the signal ability of the officers of today, the service rendered by the Boston & Albany Railroad was lamentable and generally considered the worst in New England. Today the operation of the Boston & Albany is entitled to the highest praise. Human affairs are mutable and New England may well pause before it favors placing all this additional New England mileage in a single control and that, too, outside of New England. New England should not shirk its responsibility for the present lamentable condition of the New Haven Railroad, but the general feeling and understanding in New

England, that while the series of unfortunate chapters in this road's history were being written, the actual though not technical control of this road lay outside New England, has a foundation in fact and should not be too soon forgotten.

VIEWS OF TRUNK LINE PRESIDENTS ON DISPOSITION OF NORTHERN NEW ENGLAND ROADS

The natural wish of the Commission fully to develop the situation affecting New England transportation, which it had in view in tentatively including the Boston & Maine, the Maine Central, and the Bangor & Aroostook in the New York Central, was realized at the hearings in Washington in May. Representatives of the Baltimore & Ohio, the Pennsylvania, the Delaware & Hudson, and the New York Central itself all discussed it. None favored it, although President Smith of the New York Central withheld final judgment pending the report of this Committee.

L. F. Loree, President of the Delaware & Hudson Company, in his statement before the Interstate Commerce Commission, at the hearing on May 19th, said (pp. 13-15 his printed statement):

“Boston & Maine Railroad. The plan would seem to have the effect of greatly augmenting the power of the New York Central. This is shown by the allocation of the Boston & Maine Railroad to the New York Central, accompanied by a provision for the perpetuation of its control of the Boston & Albany; the omission of any consideration of the West Shore separate from that system; the refusal to include the Michi-

gan Central in the proposed Pere Marquette system, although Professor Ripley considered that 'the desirability of withdrawing it from the New York Central . . . is self-evident,' and the weakening of its greatest rival by making the Norfolk and Western Railway the center of an independent system."

"The Delaware & Hudson would be particularly and most unfavorably affected by the proposed transformation of the Boston & Maine from an independent operating concern to an integral portion of a system which would be capable of diverting to its own rails a great deal of the traffic which now passes from and into New England through the Mechanicville gateway."

"The railroad of the Delaware & Hudson Company had its origin in the necessity to provide facilities for the distribution of the product of anthracite lands in Pennsylvania. The original project was that of the owners of these lands and very many years ago their interest and the interest of many New England communities united in establishing New England as their principal market. To that end, the railway route to Mechanicville was created and it is very largely for the purpose of transporting the anthracite products of the same and adjacent lands that it still exists. Its connection at Mechanicville is with the Boston & Maine and it is understood that, over a period of years, about sixty per cent of the traffic interchanged with the West by that railroad has been by way of the Delaware & Hudson. Moreover, the Delaware & Hudson is a 'bridge' carrier, forming, by means of connections, through Binghamton, with the Erie, Delaware, Lackawanna and Western, and Lehigh Valley, part of three

trunk line routes and, in addition to coal, it is able to deliver to the Boston & Maine important general merchandise traffic. It is, also, an intermediate carrier of traffic interchanged with New England and passing to or from the lines of the Pennsylvania; New York, Ontario and Western; Central Railroad of New Jersey; Philadelphia & Reading, and Baltimore and Ohio railroads. A very large amount of bituminous coal moves over its rails for the use of the manufacturers and railroads of northern New England. It receives from the Boston and Maine westbound traffic for transportation over the same routes. While the allocation of the Boston & Maine to a competitive system might not prevent its acceptance of anthracite passing over the Delaware & Hudson rails, it would probably result in its delivering to the New York Central all westbound traffic which it could control and closing its rails to much eastbound traffic not originating on, but which otherwise would pass over, the Delaware and Hudson. The latter has never been able to negotiate joint rates for bituminous coal for delivery via the Boston and Albany and the Interstate Commerce Act requires no railway system to open its route for joint services unless it receives a haul equal to substantially its entire length."

"Professor Ripley recommended the union of the essential portion of the Boston & Maine with the Delaware and Hudson, unless a separate New England system would be established. He characterized the suggestion that the Boston & Maine should be united with the New York Central as 'the baldest proposal' and said that it would cut down 'competition at most of

the important New England centers.' . . . No conceivable adjustment which could be made would make up to the property which I represent the loss which it would sustain in the exclusion from and diversion of important traffic which it now enjoys, should this portion of the tentative plan be consummated."

Remarks of Mr. Rea, President of the Pennsylvania Railroad in regard to relationship of the Pennsylvania to the Boston & Maine should be noted. (Mr. Rea's printed statement, page 18) :

"It is surprising to note the volume flowing to and from the Boston & Maine Railroad, which is the primary System for Central and Northern New England, and aside from its interchange with the New York Central, it handled practically all the freight between that section and points west of the Hudson, via the Delaware & Hudson, the Erie, the Lehigh Valley and the Lackawanna Systems, and through these roads traffic from the Pennsylvania. The Pennsylvania is deeply interested in keeping the Boston and Maine as a gateway and open traffic exchange, notably through the Delaware & Hudson System and the joint Wilkes-Barre Gateway in Pennsylvania."

On the Boston & Maine system the largest interchange business today is not with the New York Central system but with the Delaware & Hudson.

The average daily interchange of cars moving both east and west between the Boston & Maine Railroad and its connections (year ending June 30, 1922) was:

	Loaded Cars	Total Cars
Delaware & Hudson	210,485	326,193
New York Central	126,107	191,497
Grand Trunk, direct	11,242	21,464
Grand Trunk, via Central Vermont	28,472	40,290
	<hr/> 39,714	<hr/> 61,754
Canadian Pacific, direct	39,121	58,973
Canadian Pacific, via Quebec Central	3,409	6,270
	<hr/> 42,530	<hr/> 65,243
Total	418,836	644,687

Mr. Loree, however, submitted to the Interstate Commerce Commission a financial exhibit entitled "Delaware & Hudson and New England District, Condensed Statistical Study of Various Lines, Year 1921," which showed that in that year the consolidation of the Northern New England roads with the Delaware & Hudson would have shown a deficit after fixed charges of \$5,190,996, and if the Delaware & Hudson's income from coal operations was excluded a deficit of \$7,707,170. It is true that this statement included the Central Vermont as well as the Boston & Maine, Maine Central and Bangor & Aroostook. If the Central Vermont be omitted the deficit would remain substantially \$3,583,139 with the income from coal properties, and the deficit would have been \$6,099,313 if the income from the coal properties be excluded.

One thing to bear in mind in studying traffic conditions with reference to New England's future welfare is the provision of the Interstate Commerce Act that no railroad is obliged to "short-haul" itself. This means that if a shipper gives freight to the Boston & Albany that railroad has the right, and in prac-

tice exercises the right, to haul the freight all the way to the desired destination, if its system, which in the case of this road includes all the lines of the New York Central, reaches that destination, and if the system does not reach the destination then so far as it can be hauled in that direction on the New York Central. One bearing of this is, that a shipper delivering freight for the West to the Boston & Maine, for example, has today a great choice of routes west of the Hudson River over which he can send his merchandise, owing to the numerous and competitive trunk line connections available through Mechanicville gateway or he can ship via the northern gateways, White River Junction and Newport, Vt., over the Canadian lines. This is not only a good thing for the individual shipper in affording him a choice of routing which it is often in his interest to exercise, because of varying traffic conditions, or because of convenience of access to the car on the part of his customer at the other end, or because of any one of a number of other reasons, but it operates also to the advantage of New England as a whole. It has been largely because our shippers have been able to ship, by what route they chose, a large part of the traffic originating in New England, that New England has obtained many advantages which have helped to build up our industries.

If the Boston & Maine became a part of the New York Central system this freedom to use competitive routes would be denied New England shippers in all cases where direct routing over the New York Central is possible.

It is a bit enlightening on this point to quote from

the statement of some of the trunk line presidents made at the Washington hearing of May 16.

VIEWS OF PRESIDENT REA AND PRESIDENT WILLARD ON
IMPORTANCE OF MAINTAINING FREE ROUTING IN NEW
ENGLAND.

Mr. Rea, President of the Pennsylvania Railroad, in his testimony before the Interstate Commerce Commission in reference to the subject of maintaining free routing for all of the Trunk Lines in New England, said: (Record, pp. 7318-7319)

“ Q. With reference to New England, I take it that it is your view that it is very essential to that district that a free and open routing by all of the trunk lines be preserved? ”

“ A. Yes, sir; and by all gateways.”

“ Q. Do you think that would be as likely to be preserved if there were a partition of the New England lines among the trunk lines, if that general plan were followed of partitioning the whole territory? ”

“ A. That is, partitioning the New England lines among three or four trunk lines? ”

“ Q. Yes; partitioning the New England lines among three or four trunk lines.”

“ A. Well, it would have to be among them all, and you would have to have a neutral management, but I don't know then that it would be satisfactory. It is a very difficult proposition, I am bound to say. Of course, if the railroads of New England were affluent they could do a great many more things than they have been able to do. Perhaps the traffic conditions would not have gotten quite so bad as they do when congestion occurs.”

Mr. Daniel Willard, President of the Baltimore & Ohio Railroad, expressed his views on the trunk line treatment of the New England carriers before the Interstate Commerce Commission, May 17th, in part as follows: (Record, pp. 7367-7370)

“Now, from the service standpoint I think there is this thing to be considered. It is proposed in the tentative plan that the New Haven road should be given to the Baltimore & Ohio group. Mr. Rea has protested, very properly, against that, because of the disturbance which it would make in long-existing conditions.”

“The plan also proposes to give the Boston & Maine to the New York Central; and they would have the Boston & Albany and the Boston & Maine. If the Commission should yield to the arguments of Mr. Rea and leave the New Haven road connected with the Pennsylvania, then I wonder what there would be left in New England to interest the Baltimore & Ohio. We maintain commercial agents in Boston today and in other New England points in an effort to get as much business as may be influenced to go over our line. If those lines were all tied up to trunk lines west of the Hudson River, it seems to me we would not be justified under such conditions in leaving representatives in New England at all. What could we get for it?”

“I am told that the New England people have felt that they would be better served with trunk lines going in and coupling up with the New England roads. I think that is a fallacy. A man does not run after a street car after he catches it; and when you have tied the roads together you have definitely determined how much of that business is going to move, and you have taken it out of the field of competition.”

“ It seems to me if all the New England roads were in a group, if rate divisions were made at the Hudson River or Canadian boundary, and if all roads were in a position to interchange business on even terms, if all roads outside could interchange on a parity with all roads in New England, then I am sure that under such conditions we would want representatives in New England. We would solicit their business, and by the kind of service which we would give them, we would hope to increase our business in that section. It seems to me that situation would do more to improve the service into and out of New England than any possible combination of existing railroads. And it is because of all those things, Mr. Chairman, it seems to me that it would be better to deal with New England as a group rather than as a part of the Baltimore & Ohio or any other road.”

“ Q. (By Prof. Ripley) Do you think, Mr. Willard, that that would somewhat automatically take care of the question of division of through rates to New England points? ”

“ A. Well, I suppose what you have in mind is this, that the different roads might bid against each other. There would always be that opportunity, of course, between the Canadian and the American roads, because the Canadian roads would not be under the jurisdiction. And New England would still have as much advantage from that avenue as she has today. But as to whether the roads west of the Hudson would be likely to reduce rates as against each other, they would be just as likely to do it then as they are now; and even now I think we have reached the basis where those

things are likely not to happen so much as in the past. The present arrangements make more for stability.”

“ Q. Would you have the competition between the Canadian and American roads? ”

“ A. That you would have, and just as much as you have now between the American.”

“ Q. Do you regard the preservation of those Canadian routes as of real significance to New England? ”

“ A. I think New England probably regards them as such, and they would not be interfered with at all by this. Nothing in the plan I have suggested, from my point of view, would weaken the position of New England to demand good service and get good rates. On the contrary, I think their ability to route their business to this, that or the other road would put every road on notice, and everybody would be running after the street-car.”

(Record, pp. 7373-7375.) “ Q. (By Mr. Shriver) Before you leave that, Mr. Willard, you referred to the particular interest the Pennsylvania had in the New England interchange? ”

“ A. Yes, sir.”

“ Q. The statement you have filed showing the distribution of New England traffic for a constructive year showed the Pennsylvania interchanges 18.54 per cent. That statement also shows the interchange with the Central Railroad of New Jersey as 15.41 per cent of the tonnage.”

“ A. Yes.”

“ Q. That is also a large interest.”

“ A. I am glad you reminded me of that because I shall now want to say this, that if the Commission

should decide not to make New England a separate group as I have suggested, then in that event I should think you would leave the New Haven road as a part of the Baltimore & Ohio and Reading group, because if that is the way it is going to be settled, then I should hope the Baltimore & Ohio group might have some connection in New England."

"Q. (By Prof. Ripley) In other words, Mr. Willard, isn't it an almost inevitable result of affiliation of part of New England with any trunk line that that trunk line would enjoy a predominant share of the business so far as it could?"

"A. So far as it could, undoubtedly."

"Q. And that would interfere with the freedom of routing——"

"A. So it seems to me."

"Q. With all the trunk lines that they now enjoy?"

"A. It is for that reason, as I say, we would be quite satisfied, entirely satisfied, and would prefer to stay at the west bank of the Hudson River. But still if one road goes over, we will want to go over with the rest, and I should want the New Haven left with the Baltimore & Ohio under this proposition."

"Q. In other words, any grouping of New England should be at least in such form that each of the trunk lines will get a part?"

"A. Yes, sir."

"Q. As long as none of them have anything, you have no desire to go in?"

"A. I have no desire to go in at all if none of the rest go in, but if even one goes in, I want to go in also."

"Q. (By Mr. Brown) Go in or stay?"

“A. Or come out.”

“Q. (By Commissioner Hall) Some are in already.”

“A. I think that is not an insurmountable situation to deal with.”

(Record, pp. 7420-7421.) “Q. Coming to New England for a moment, do you feel that it should be part of the sound national policy to develop Up-River contacts for New England, rather than to throw the traffic more and more through the Port of New York?”

“A. No, I think New England—it seems to me that they ought to make the fullest use possible of their water transportation facilities, which they always have used. They have been built up on that basis, bringing their coal and lumber and stuff along the coast and then carrying it inland either by water or by rail. It seems to me that is an economically sound arrangement and ought to be continued.”

“Q. I was thinking rather of that interior coal line that is developed on your property. The contact of that line with New England is in part by way of the Poughkeepsie route, isn't it?”

“A. Yes, sir.”

“Q. The question is this: Isn't the development of traffic moved by such an up-river route, instead of going directly through New York, on the whole desirable as a part of the policy looking to the future?”

“A. Well, that would not go through New York, would it? Coal going to New England via Poughkeepsie?”

“Q. No. It avoids New York. That is just the point.”

THE FEAR THAT A NEW ENGLAND GROUP WOULD HAVE
TOO GREAT POWER IN DEALING WITH TRUNK LINES

The comment of W. H. Williams, Vice President of the Delaware & Hudson Railroad and Chairman of the Board of the Wabash, upon the strength of the grouping of New England lines in its relations with the Trunk Lines should perhaps be referred to. He said before the Interstate Commerce Commission May 18, (record page 7767):—

“In the event of the consummation of the proposed grouping of the New England lines, think of the power that would be given them on such questions as divisions, service, per diem and the furnishing of cars. They could take all of their traffic and turn it over to one system west of the Hudson until they forced another line to give them something to which they might not be equitably entitled. For example, they could turn over all of their traffic to the Pennsylvania and keep it there until the New York Central should outbid its competitor. In dealing with this situation it is significant that the New York Central has been granted an important advantage over competing properties through the allocation to it of the Boston & Albany lines, permitting exclusion of competitive traffic over those lines. This preferential position has been further strengthened through the tentative assignment to the New York Central of the additional lines of the Boston & Maine, Maine Central and Bangor & Aroostook. This arrangement tends to enlarge and support a system, declared to be already of sufficient magnitude

and strength, at the expense of less powerful and more natural connections.”

and (record on page 7776):—

“I think there is another thing that would be of considerable interest to develop. In the New England Divisions Case there was an analysis made of the traffic interchanged between the New England lines and the other territories, and this analysis (Brigham Exhibit No. 14) showed:

Interchange with Trunk Line Territory	61.0%
Interchange with Central Freight Association Territory	27.0
Interchange with Territory west of the Mississippi River	3.7
Interchange with Canadian roads	3.0
Interchange with Southern roads	2.8
Interchange with Transcontinental traffic (moving on transcontinental rates)	2.5

This would emphasize, in a way, that if all the New England lines were placed in one group and this traffic diverted to one of the trunk lines, it would have a terrific effect. It would not make much difference to the transcontinental lines but would in the intermediate territory.”

If, because of a New England consolidation, we should acquire the power feared by Mr. Williams, we should try to use it humbly and under the direction of the Interstate Commerce Commission and so as to earn the good will of our neighbors. It would not, we suppose, be reasonable to expect some of these trunk line presidents to consider in their consolidation plans what might be for the interest of these seven and a half mil-

lion people living in New England, but their views do seem to take on a bit the color of Joseph's brothers casting lots for his clothes.

Mr. L. F. Loree, President of the Delaware & Hudson Company, said in the same connection (printed statement, page 18):

“New England. Contrary to a general public impression, there is no proposal, in the ‘tentative plan’ or by Professor Ripley, to create a single system embracing all New England lines. Perpetuation of the control of the New York Central over the Boston and Albany, and that of the Grand Trunk (of Canada) over the Central Vermont, as well as the continued ownership by the Grand Trunk and Canadian Pacific of their railway properties in northeastern New England, seems to have been accepted without question. The consolidation, into a single system, of the remaining New England railways is, however, one of the proposals and, as to this, it is necessary to observe that the power of such a combination to divert an important volume of traffic, at its pleasure, from one connection to another, would confer an opportunity to extort unfair and excessive divisions which would certainly be utilized and which ought not to be permitted. The control of traffic originating on one such railroad has, in the past, been utilized to produce precisely that result, that company receiving as much as one-fourth of the total earnings for a haul of 150 miles out of a 1,000-mile haul, or twenty-five per cent of the compensation for fifteen per cent of the service. Sixty-one per cent of the traffic of New England rail-

ways is interchange traffic, to or from Trunk Line connections.

“I have, therefore, two suggestions to make as to New England, as follows:—

“1. That New England railways located north of the Boston & Albany (the Boston & Maine, Maine Central, Bangor & Aroostook and Central Vermont) be united with those of The Delaware & Hudson Company, or,

“2. That the New England railways located north of the Boston & Albany be united with those of the Boston & Albany and that the Delaware and Hudson and the New York Central Railroad Company become owners of equal interests in the consolidated property.”

Mr. William S. Jenney, Counsel for the Delaware, Lackawanna & Western Railroad expressed himself in Washington as not agreeing with the position taken by Mr. Williams and Mr. Loree. We quote from his testimony. (Record page 7871.)

“Q. In that connection I would like to read a paragraph from Mr. Williams’ statement yesterday on behalf of the Wabash, and ask you if in your judgment it represents the situation.”

“In the event of the consummation of the proposed grouping of the New England lines, think of the power that would be given them on such questions as divisions, service, per diem, and the furnishing of cars. They could take all of their traffic and turn it over to one system west of the Hudson until they forced another line to give them something to which they might not be equitably entitled. For example, they could turn over all of their traffic to the Pennsylvania and keep it

there until the New York Central should outbid its competitors."

"And in another place:"

'The figures of interchange would emphasize, in a way, that if all the New England lines were placed in one group and this traffic diverted to one of the trunk lines, it would have a terrific effect.'

"A. I do not agree with him at all. I don't think there is any thing to that at all."

"Q. Do you think that power might be utilized to secure a fairer division of the through joint rates?"

"I will not use the word 'fairer', but to bring about an equitable adjustment in the division of the through rates."

"A. I doubt if they could exert enough power even for that. What I mean to say is that I think they would have to go to the Commission if they were to get any larger division of rates than now. I don't think they would be able to force that tonnage over one line. It has to go over its natural routes. The Pennsylvania have to take it and the New York Central have to take it, and what is left will go to the other lines. The New England lines, even if operating as one property, could not force the routing of traffic in any one direction so as to get any undue advantage or anything of that sort, in my judgment."

"Q. But the advantage of that consolidated group would be to perpetuate opportunity as among all the trunk lines, whether they were of equal size and strength or not?"

"A. I think it would be very helpful from a trunk line standpoint. In other words, I think that the trunk

line that gives the best service, etc. would increase its New England business."

"Q. You are not assuming, are you, that competing strength of the big as against the lesser companies is a matter of size?"

"A. Oh, no. I don't think it is a matter of size. In other words, the small company that had a profitable business to a very much lesser extent than a large company, who had a very much smaller interest charge, might be able to do as well upon its small business as the big company upon its bigger business. I do not think it is necessary to have the companies of the same size, but you have to create, it seems to me, if we are going to have two small trunk lines in competition with three big lines, a condition where you have the small lines in a position where they can get business from all the different parts of the country. You cannot practically shut them off from Pittsburgh and Chicago and shut them off from New England and Philadelphia and expect them to do business."

IMPORTANCE OF CANADIAN GATEWAYS

In considering this consolidation of the Boston & Maine with the New York Central, we must not overlook New England's two important northern gateways, one via the Central Vermont-Grand Trunk route and the other via the Canadian Pacific. The former bisects New England from the Canadian-Vermont line to tide-water at New London, cutting all our east and west lines. The Canadian Pacific is reached by the Boston & Maine at Newport, Vermont, and freight from eastern and northern New England moves to Newport

chiefly by the Boston & Maine line which leaving Boston passes through Lowell, Nashua, Manchester and Concord to a connection with the Central Vermont at White River Junction in the Connecticut Valley or further north to the Newport connection with the Canadian Pacific. We shall refer again to the differential routes through these two northern gateways. Suffice it to say now that the interchange of New England's industries through these two northern gateways for the year ending June 30, 1922, amounted to 61,754 loaded cars via the Central Vermont and Grand Trunk and 58,973 loaded cars via the Canadian Pacific.

Many people, even New Englanders, if they are not regular shippers, impressed by the fact that these lines run through New England almost due north, think of them as roundabout routes to Chicago and the West, only suitable for relatively unimportant and low-grade merchandise, but, as a matter of fact, the distance from Boston to Chicago by the Grand Trunk route is 1129 miles, and the New York Central route is only 108 miles shorter.

We give the distance from Boston to Chicago by half a dozen of the established routes, having joint tariffs regularly used by New England shippers:

Boston to Chicago — Comparative Distances

	Miles
Boston & Maine, New York Central — Wabash	989
Boston & Maine, New York Central — Nickel Plate	1004
Boston & Maine, New York Central (West Shore)	1021
Boston & Albany, New York Central	1026
Boston & Maine, Delaware & Hudson — Delaware, Lackawanna & Western — Nickel Plate	1061
Boston & Maine, Central Vermont — Grand Trunk Railway (via Swanton & Coteau Junction)	1129
New Haven — Pennsylvania Railroad	1137
Boston to Chicago via Boston & Maine, Canadian Pa- cific Railroad & Michigan Central	1189
New Haven (via Devon & Maybrook) — Erie	1226
New Haven — Baltimore & Ohio (freight line)	1248

The Grand Trunk route turns westerly about 3 miles north of St. Albans, Vermont, and does not go through Montreal or through any big terminals or congested points anywhere between the Vermont line and Chicago. This is a great operating advantage compared with traffic over the New York Central which moves through Albany, Buffalo, Cleveland, and various other terminals where traffic is heavy and congestion frequent. Moreover, the Canadian routes do not become loaded with coal during the winter months when the going is hard and the drawbar pull of the locomotive at the minimum owing to cold.

TRUNK LINE CONTROL WOULD ENDANGER
CANADIAN GATEWAYS

With the New York Central in control of the Boston & Maine, Maine Central, and Bangor & Aroostook, the situation would be exactly that contemplated by the Amendment of June 10, 1910 (36 St. 552) to the Interstate Commerce Act as amended February 28, 1920 (41 St. 485), which provides that the Commission shall not in establishing a through route

“ require any carrier by railroad, without its consent, to embrace in such route substantially less than the entire length of its railroad and of any intermediate railroad operated in conjunction and under a common management or control therewith, which lies between the termini of such proposed through route, unless such inclusion of such lines would make the through route unreasonably long as compared with another practicable through route which could otherwise be established.”

It has been suggested that in the event of a consolidation of the Boston & Maine with the New York Central these northern routes could be protected by an order of the Interstate Commerce Commission or by some collateral agreement, but to us this is not at all reassuring. It is by no means certain that the Commission would feel warranted under such an order, in disregarding the provisions just quoted from the statute, nor is it yet clear that as a matter of law it legally could do so. In order that these northern routes may be successful they need more than an order or a formal agreement to be enforced by appeal to the Interstate Commerce Commission; they must have sympathetic, smooth, prompt and regular service.

Sympathetic, responsive and effective cooperation between two men as partners cannot often be secured by a written agreement, if their self-interests and inclinations pull in opposite directions.

It has been pointed out that such an order was entered by the Interstate Commerce Commission to protect other railroads in the case of the Chicago Junction Railway in connection with its acquisition by the New York Central system. But we note that, besides a clearly expressed belief on the part of the other railroads that this stipulation or agreement will not sufficiently protect them, the Pennsylvania Company, the Baltimore and Ohio, the Erie and four other companies have brought suit in the United States Circuit Court in an endeavor to stop this consolidation. This litigation is burdensome and expensive, but nevertheless has been begun due to the apprehension, based on the plaintiff companies' experience of many years in practical railroading, that somehow or other the relations between the Chicago Junction Railway and the New York Central system are going to slide along in an easy groove, while the other roads are going to be at a practical disadvantage.

PRESIDENT HUSTIS EMPHASIZES IMPORTANCE OF CANADIAN GATEWAYS

The importance of the Canadian gateways was pointed out and emphasized by Mr. J. H. Hustis, President of the Boston & Maine, in his testimony before the Interstate Commerce Commission on May 24th (Record, pp. 8030-1):

“The Boston & Maine has a substantial interchange

with the Canadian Pacific direct and with the Grand Trunk (now the Canadian National Railways) through the Central Vermont. New England traffic is regarded as attractive by both of these lines, and a high quality of service is maintained through these northern gateways, which has probably been quite as effective in maintaining the popularity of these routes as have the westbound differential rates."

"In any event, and in any plan which may be adopted, the importance of these routes not only to New England but to the Boston & Maine will, of course, be recognized."

PRESIDENT PEARSON ON EFFECT OF TRUNK LINE CONTROL UPON FREE ROUTING OF NEW ENGLAND TRAFFIC

That these Canadian connections as well as the present equality of treatment for all trunk lines at the various gateways would be jeopardized by a trunk line consolidation is clearly the opinion of President Pearson of the New Haven, who testified before the Commission in Washington (Record, p. 8141):

"Assuming consolidation between the New Haven and a trunk line, this would inevitably result in an attempt to control the movement of traffic and restrict it as against other gateways and other routes."

"Privileges of shippers, heretofore enjoyed freely, would become restricted in part by the provisions of the Interstate Commerce Act, permitting a system to refuse to short haul itself, and in addition, shippers would gradually find themselves under new influences. The tendencies could not be other than restrictive, in

the desire to secure all of the traffic possible for the consolidated system."

(Record, p. 8143.) "Inflexibility would gradually come about in respect to rates divisions, etc., other than those confined to the consolidated system. The use by New England of any and all routes, water as well as rail, would almost surely suffer restriction instead of encouragement as now."

(Record, pp. 8144-8145.) "It has been assumed that with respect to the New England section of a consolidated system, it could be placed under the requirement to continue to serve the public in all matters as heretofore."

"If this is the case, it is apparently the thought that the trunk lines which consolidated with the New England system would forego certain advantages and rights but would assume the financial obligation. Is this reasonable? Should a trunk line, for example, merge the New Haven, is it conceivable that terminal service for the other trunk lines would thereafter receive the same treatment as now? Does the history of railroads bear evidence of such instances of altruism? Is this contemplated by the Transportation Act?"

"Can it be conceived that other connecting carriers would anticipate such a situation with equanimity? Would they not, and in all fairness to their point of view should they not, as in the recent case of the Belt Line in Chicago, take into the courts those questions relating to the probable restriction of their free open opportunity to receive hereafter that character of terminal service in New England that they have enjoyed heretofore?"

VIEW OF PRESIDENT TODD

President Percy R. Todd, of the Bangor & Aroostook, who was formerly General Traffic Manager of the West Shore Railroad and later Vice-President of the New Haven, and in a varied railroad career has an unusual knowledge based upon practical experience with New England transportation conditions, gave some valuable testimony before the Interstate Commerce Commission in Washington on May 25th. Speaking primarily from the standpoint of his own company, not so much on the basis of the interest of its security holders as upon that of the public served by it, he said (Record, p. 8227) :

“System No. 1. — At the present time shippers on the line of the Bangor & Aroostook Railroad forward a great deal of freight to Central Freight Association territory, and have open to them through our connection with the Canadian Pacific at Brownville Junction, excellent service, and sometimes slightly lower rates than by other routes, and if they do ship via the Maine Central Railroad through our connection at Northern Maine Junction, have the choice of many different routes to the west” — (of which he enumerated and described ten) “ whereas it is natural to assume that if consolidation was made under System No. 1 ultimately the traffic would have to be confined to the New York Central System, for the reason that there can be no possible object in the New York Central or any other trunk line acquiring ownership through consolidation with any of the present inde-

pendent New England railroads, none of which except the Bangor & Aroostook are financially strong, and which acquisition would undoubtedly involve the trunk lines in assuming financial liabilities on behalf of the New England Railroads acquired, unless they hope to offset these financial obligations by monopolizing the traffic to and from New England, and thereby make up in revenue more than sufficient to offset these deficits which certainly would not be to the interest of the New England public."

Then extending his comments as to the effect of trunk line consolidation (as embodied in the Commission's alternative tentative plans—"System No. 1—New York Central," giving the Boston & Maine to the New York Central, "System No. 3—Baltimore & Ohio," allocating the New Haven Railroad to the Baltimore & Ohio, and "System No. 7A—New England-Great Lakes," setting up a new trunk line system he observed (Record, p. 8229):

"The above statements" (those just quoted) "refer to the interests only of the public served by the Bangor & Aroostook Railroad, but it is our feeling that the same is true, possibly to even a greater degree, of the New England public generally in that portion of Maine not served by the Bangor & Aroostook, and in the other New England States, as no other object than that of monopolizing the traffic can be conceived for any trunk line being willing to invest large sums of money in acquiring one or more of the New England railroads, and becoming financially responsible for their obligations; the interest on the money invested on such acquisition, and the money required

for meeting obligations of the New England roads, with which consolidation is effected, must come from some source, and what possible way is there of realizing that money by the trunk lines except by securing a greater share of traffic to and from New England than such trunk lines have heretofore enjoyed."

"While the question of freight rates is always a vital one, it is well known that in recent years the public has placed good service ahead of low rates, and with the general New England public having at the present time at least ten outlets to and from the west, it is a natural assumption that with the number of outlets decreased, and to some extent a monopoly substituted, the service will not be as good as it is under the present conditions."

DIFFERENTIAL ROUTES TO WEST AND SOUTH WOULD BE ENDANGERED BY TRUNK LINE CONSOLIDATION

It is also true that New England, as we have previously explained, has various vital differential routes by water and rail to the west and southwest, particularly through Baltimore and Savannah, which may find their usefulness and ability to obtain cargoes diminished, because the New York Central management in the long run would find its interests more directly concerned in moving merchandise destined for any point south or west out of the central or northern half of New England, by its own standard full-price, all-rail route.

BOSTON & MAINE SHOULD NOT BE DISMEMBERED

In his discussion of the northern New England situation, Professor Ripley intimated, as an incidental feature of a Boston & Maine consolidation with the Erie, a possibility of first cutting out from the heart of the Boston & Maine its line from Worcester, through New Hampshire to Portland — originally the Worcester, Nashua & Rochester — and assigning that line, together with the Maine Central and the Bangor & Aroostook, to the New York Central. No such suggestion should for a moment be entertained. It would fatally weaken the Boston & Maine and precipitate immediately the financial debacle likely in any event to follow the consolidation of the weak Erie with the already sufficiently weak Boston & Maine even without having subjected the latter to this proposed major excision of one of its vital parts. Far better would it be to turn all these northern roads, including the Boston & Maine, over, once for all, to the New York Central.

TENTATIVE ALTERNATIVE—"SYSTEM 7A—NEW
ENGLAND-GREAT LAKES"

In regard to the other alternative consolidation proposed by the Interstate Commerce Commission in its tentative plan, designated as "System 7a — New England-Great Lakes," providing for the consolidation of the New England lines with the Delaware & Hudson, the Delaware, Lackawanna & Western, Buffalo, Rochester & Pittsburgh and certain smaller roads, no one has seriously urged it. Its weaknesses were

pointed out in the statement of William S. Jenney, Counsel for the Delaware, Lackawanna & Western Railway Company, before the Interstate Commerce Commission in Washington at the hearing on May 17, and we agree with his conclusion that the objections to it are insuperable. We give in Appendix Q a portion of Mr. Jenney's statement.

DISPOSITION OF RUTLAND RAILROAD

With regard to the disposition of the Rutland Railroad it should be noted that Professor Ripley has suggested that it be consolidated with the New York Central system, as does the Commission also, affirmatively in its "System No. 1 — New York Central," and negatively in its "System No. 7 — New England" and "System No. 7a — New England-Great Lakes," by including it in neither of those tentative systems. In the proceedings before the Interstate Commerce Commission at Washington, Mr. A. H. Smith, President of the New York Central, said (printed statement, p. 12): "we are willing to accept the Rutland although we have not shown it on the map of our proposed plan."

At present the control of the Rutland is owned jointly by the New York Central and the New Haven railroads, these two roads having an equal interest in 51 per cent of its capital stock, and we think it vital that this joint interest should remain or at least that New England should remain as a partner in this road.

In the opinion of the committee, consolidation of the Rutland with the New York Central at the present time would be unfortunate, for, in the event that it

proves possible to reconstruct the New England railroads so that a New England consolidation may be ultimately effected, a part ownership in the Rutland Railroad would, in the opinion of the Committee, be of importance in this New England system. It provides a differential route to the West via the Lakes from New England. The route is via the old Cheshire Railroad from Fitchburg to Bellows Falls, which is in excellent condition, and from Bellows Falls, via the Rutland, to Ogdensburg. With the enlargement of the Welland Canal, the Rutland would also have new possibilities for export grain movement from Ogdensburg, via the Boston & Maine at Bellows Falls, which, in the hands of an aggressive New England railroad management, should be able to add materially to the export grain traffic through the port of Boston.

ARGUMENT FOR TRUNK LINE CONSOLIDATION

The fact is that so far at least as the welfare of New England is concerned, the only argument that has been put forth with any emphasis in favor of trunk line consolidation has been the financial argument. This has been set forth ably by Mr. John E. Oldham, who has performed a public service in studying and elaborating this side of the question. Mr. Oldham appeared before this Committee and gave us the benefit of his thorough study of this question, and Mr. Charles A. Andrews, his associate, also presented an able argument on the financial side of the question. Mr. Oldham dealt with the Committee with straightforward frankness, and stated that his conclusion had not taken into ac-

count the operating policies or the present management of either the New Haven or the Boston & Maine railroads. He pointed out certain general operating disadvantages, chiefly the relatively high cost of fuel in New England, and the relatively short haul, and the large terminal expenses, which he felt were materially unfavorable factors. Certainly the New England handicap in regard to these factors cannot be gainsaid.

A NEW ENGLAND SYSTEM PREFERRED

This Committee has reached the conclusion that if financial considerations permit, the welfare of New England can be better served by a consolidation of the New England systems, leaving out the Boston & Albany, Central Vermont, and the Grand Trunk Line to Portland, and the small Canadian Pacific mileage in Maine and Northern Vermont.

This system is outlined in the Interstate Commerce Commission's "Plan No. 7—New England," but should, as we have already indicated, include joint ownership with the New York Central in the Rutland Railroad. In this Committee's opinion to retain in this "System 7—New England" the two small so-called Bridge Lines—the Lehigh & New England and the Lehigh & Hudson River—is not so vital. Not only do we think such a New England Consolidation in the interest of New England shippers but we think it is equally in the interest of the consignees at the other end who are receiving merchandise originating in New England, and also of the shippers outside of New Eng-

land who wish to send the product of their farms, mines or factories into New England.

New England would like to wear its own breeches. We submit that it should be allowed to do so unless a clear case can be made out why one leg should be handed over to the Pennsylvania Railroad, or the Baltimore and Ohio, and the other to the New York Central.

RAILROAD MANAGEMENT IN NEW ENGLAND MUST BE SYMPATHETIC TO DEVELOPMENT OF NEW ENGLAND SEAPORTS

The indented shore line of New England, and its many harbors, with population and industries gathered directly on or within a few miles of the shore, give New England a special interest and compel a special policy, if New England is to continue to flourish.

A New England system offers in many respects the best hope for these seven and a half million people. We must have and must properly maintain our railroads, but up here in the corner the greatly enhanced cost of rail transportation is going to "get" us unless we can operate our railroads so as to take day by day the utmost advantage of our sea possibilities.

Is it practical, is it safe, to expect a New York Central or a Pennsylvania management to lay this to heart and keep it there day by day? We must, without the slightest tinge of criticism, deal with the ordinary springs of human action. Might not the directors of these two roads looking out of the windows of their meeting rooms understand better, and be more dis-

posed sympathetically to cooperate with, the needs of the port of New York and the port of Philadelphia than of Portland or Boston or Providence or New London? So far as the Pennsylvania Railroad is concerned in port development, Philadelphia and New York must inevitably be the magnets to attract their thought and their capital, and the port of New York cannot help in the long run being a greater object of solicitude to the New York Central officials than the port of Boston.

These New England seaports are to us not part of a surplus stock in trade—they are our chief stock in trade, and essential to our livelihood.

The development to the utmost of this single economic advantage possessed by the people living in New England is not in any way prejudicial to the welfare and interests of this country as a whole. Neither does the national welfare nor a national railroad policy require the uprooting of the interests of any large body of citizens anywhere in this country; the problem rather is how to make the railroads contribute the utmost good to each large group of American citizens whether on the Atlantic seacoast, or the Pacific seacoast, the Great Lakes or elsewhere in the country.

We think it is clear that unless there is a compelling financial reason there is no advantage either to New England or any other part of the country in consolidating the New England railroads with the trunk lines. Do the shorter haul, the enhanced cost of fuel, and the other operating disadvantages of the New England rail carriers, constitute a compelling reason?

NEW ENGLAND'S ADVERSE PER DIEMS

The change from a mileage to a per diem basis for the use of freight cars, and the gradual rise in the rate until it reached a dollar, created one of the most serious adverse factors in the New England railroad situation. Its effects have been profound. The change was in the interests of general economy and efficiency, and therefore sound for the country as a whole, but it introduced an entirely new situation in New England. The short haul, the multiplicity of branches, junction points and terminals, which have caused New England to be described as having rather the character of a great terminal, produce necessarily a slowing of car movement in New England and impose therefore a heavy adverse per diem burden. The line-haul is the really profitable part of railway operation. There is no question but that the introduction of the per diem and the rise in the rate until it reached the present level of a dollar a day put New England at a serious disadvantage. The adverse per diem balances of certain of the New England roads during the year 1922 amounted to \$8,833,185, and the credit balances of the three creditor roads amounted only to \$422,266.

RATE DIVISIONS, BASED ON NEW ENGLAND'S OPERATING
DISABILITIES, WORK TOWARD SAME BENEFITS
AS WOULD CONSOLIDATION WITH STRONG ROADS

The purpose of the Transportation Act can only be accomplished in many and we suppose in most parts of the country by consolidations such as are discussed

in the Ripley report. If the financially weaker lines must be maintained for the benefit of the people who depend upon them, and if the policy of the government is to maintain equal rates for equal service without permitting some roads to operate at too great profit and others at insufficient profit, the object sought can be gained only in most sections of the country by a consolidation of the weaker roads with the stronger.

In the case of the New England railroads their geographical location, set off as they are in the northeast corner of the country, with none of them reaching substantially west of the Hudson River, there remains another method of maintaining the national policy of equal rates, without permitting these roads if they are consolidated into a New England system to earn either too much or too little. The way has been found; moreover it has been put into effect already by the Interstate Commerce Commission. It has been declared also by the Supreme Court to be legal and within the existing powers of the Interstate Commerce Commission. This recent decision of the Interstate Commerce Commission, sustained by the Court, ordered a new division of rates between the New England railroads and the trunk lines. It is true that this action established a diversion of income from the trunk lines to the New England lines, but so will the consolidation feature of the Transportation Act if that feature of the Act is ever made mandatory. We see no difference in result. This plan is now in effect so far as the New England roads are concerned, and we see no necessity and no reason based on public welfare for destroying it and starting another policy.

We do not say this because we happen to live in New England but because these New England roads are tucked away beyond the Hudson River in one homogeneous corner of the country.

TRUNK LINE CONSOLIDATION A LAST RESORT

The great majority of the inhabitants of New England do not want trunk line consolidation; they do not believe that national interests require it, and they do not believe it is best for the development of this portion of the country. We think New England has too long a record and has shown too many times, whether in war or peace, its desire to contribute to the national welfare, whether it happened to be to the immediate interest of New England or not, to permit the charge to be successfully made that in this matter it is seeking to obtain for itself a benefit which in any respect is hostile to the interest of the country as a whole. On the contrary, the development of each and every group of states in this country to the utmost possibility is in the interest of all the states, and this doctrine applies to the question before us.

THE QUESTION OF COMPETITION

The importance of competition has been recognized by Congress, which directed in the Transportation Act of 1920, that in setting up proposed consolidations "competition shall be preserved as fully as possible."

Whatever competition of a substantial sort now exists in New England railroading is between one or another of the strictly New England roads and the New York Central (Boston & Albany), the Grand Trunk (Central Vermont) or the Canadian Pacific. All this would be preserved under the proposed New England consolidation. As among those roads which have been designated to form a possible New England system, competition does not now exist in any substantial amount. Each road serves a territory into which none of the other New England roads penetrate to an appreciable extent—with the single exception that there is a fringe of towns and cities along the southern border of the Boston & Maine and the northern border of the New Haven which are served by both. This fringe is for the most part, and under a New England consolidation would continue to be, served by the strong and efficient New York Central system (Boston & Albany).

The real railroad competition of value to New England, and which it is important to preserve, is in the transportation facilities furnished from the western and northern New England boundaries to other portions of the United States and to Canada. With the assurance of a reasonable public control, in the interest of the maintenance and development of New England industrial activities, competition within New England is distinctly secondary in importance to the New Englander provided he has the choice (which with the unified New England system he would have) among the various New England gateways and the routes available through them.

TRANSPORTATION ACT DOES NOT MAKE CONSOLIDATION
COMPULSORY

The Committee, of course, recognizes that the adoption of any consolidation plan by the Interstate Commerce Commission under the provisions, relative to consolidation, contained in the Transportation Act of 1920, does not necessarily result either in an immediate or even ultimate consolidation in accordance with the plan adopted. Except, however, as that plan may, upon application, be subsequently modified by the Commission, no consolidation can be effected which does not conform to it. Furthermore, the statute is mandatory upon the Commission to adopt a plan and this it must do with reasonable diligence. It is this situation which creates, in the opinion of the Committee, the necessity of the consideration given in this report to various possible consolidations and the necessity of the adoption for the New England States, and the New England public, of that form of consolidation which seems to them best adapted to their continued prosperity and development and consequently the best for all other sections of the country with whose prosperity and development ours in New England is so closely bound up.

INTERSTATE COMMERCE COMMISSION'S "SYSTEM NO. 7—
NEW ENGLAND" BEST FOR NEW ENGLAND

The Committee does not recommend at the present time any further consolidation either of the New England railroads among themselves or between any of them and any of the trunk lines or other railroad systems. It seems sufficient now to indicate merely what

kind of consolidation is best so that if at any time in the future further consolidations are desired, they may be along lines in harmony with the expressed preference of New England.

As already indicated, the Committee believes that the Interstate Commerce Commission's System No. 7, with minor modifications, is the best for New England. This system would consist of the Bangor & Aroostook, the Maine Central, the Boston & Maine, and the New York, New Haven & Hartford railroads, and their controlled lines, including the New York, Ontario & Western and the Central New England, and at least an equal interest with the New York Central in the Rutland Railroad. While the Commission included the two so-called bridge lines, the Lehigh & Hudson River and the Lehigh & New England, the Committee is of the opinion that neither of these lines is essential provided their present relation to New England lines is not substantially changed.

If a New England system should eventually be established, leaving out the Boston & Albany and the Central Vermont, it is clear that the inclusion of the Bangor & Aroostook, the Maine Central, the Rutland, and the New York, Ontario & Western would present no financial problems of consequence in addition to the problems involved in the rehabilitation of the New Haven and the Boston & Maine. These four roads will all at least care for their fixed charges. The Bangor & Aroostook is paying dividends on both its common and preferred stock, and the Maine Central though getting a bad start in January and February is a sound, well managed property.

THE PROPOSED NEW ENGLAND SYSTEM COMPARED WITH OTHER RAILROAD SYSTEMS

Such a New England System, if and when put together, would constitute a compact railroad, comparing favorably in mileage, revenues, volume of traffic, both passenger and freight, with the existing railroads of the country as well as with several of the proposed consolidated systems under the Interstate Commerce Commission's tentative plan. It would have 7,612 miles of line, the aggregate earnings of which in the year 1922 were \$258,253,750.

The following table gives, for purposes of comparison, 1922 gross revenues of the present larger railroads of the United States, including their principal subsidiaries:

	Gross Revenues
Pennsylvania	\$699,489,929
New York Central	574,590,294
Southern Pacific	260,979,957
New England System (N.H., B. & M., Me. C., B. & Ar., Rutland, N. Y. O. & W.)	258,253,750
Atchison, Topeka & Santa Fe	225,124,544
Baltimore & Ohio	203,959,372
Illinois Central	198,028,369
Union Pacific	196,048,716
Chicago, Burlington & Quincy	189,072,034
Southern	183,162,171
Chicago & Northwestern	173,901,444
Chicago, Milwaukee & St. Paul	156,950,628
Louisville & Nashville	146,768,778
Chicago, Rock Island & Pacific	125,086,233
Erie	112,565,748
Great Northern	103,452,937
Missouri Pacific	99,921,331
Northern Pacific	96,076,067
Norfolk & Western	90,314,743
Chesapeake & Ohio	83,511,561
St. Louis—San Francisco	83,008,023
Delaware, Lackawanna & Western	74,873,605
Atlantic Coast Line	74,044,589

It will be seen that of these 23 systems the New England roads, if taken together and reckoned as one system with revenues combined, would be fourth in respect to revenue.

The following table gives a similar comparison between the proposed New England System, as suggested by the Committee, with each of the other systems described in the Commission's tentative plan, omitting, however, from "System No. 1—New York Central," the Boston & Maine, the Maine Central, the Bangor & Aroostook and the Rutland, and from "System No. 3—Baltimore & Ohio," the New York, New Haven & Hartford and Central New England:

System	Gross Revenues
2 Pennsylvania	\$696,983,478
1 New York Central (Excluding New Eng- land Lines)	578,381,963
17 Southern Pacific—Rock Island	416,490,758
13 Union Pacific—Northwestern	371,023,658
3 Baltimore & Ohio (Excluding New Haven)	362,443,933
14 Burlington—Northern Pacific	309,400,750
16 Santa Fe	304,236,707
4 Erie	303,027,136
15 Milwaukee—Great Northern	284,804,897
11 Atlantic Coast Line—Louisville & Nash- ville	278,944,431
7 New England (Committee's recommenda- tion)	258,253,750
12 Illinois Central—Seaboard	249,173,976
19 Chicago—Missouri Pacific	212,071,998
18 Frisco—Katy Cotton Belt	192,731,019
10 Southern	190,355,309
5 Nickel Plate—Lehigh Valley	149,699,199
8 Chesapeake & Ohio	116,376,470
9 Norfolk & Western	106,970,629
6 Pere Marquette	54,807,948

NEW ENGLAND WOULD BE SUBMERGED IN ENLARGED
PENNSYLVANIA AND NEW YORK CENTRAL SYSTEMS

It will be seen from this comparison that the New England group would rank eleventh in gross revenue among the 19 consolidated systems proposed in the tentative plan of the Interstate Commerce Commission. It would be almost as large as systems 6, 8, and 9 combined.

Should, however, the alternative suggestion of trunk line consolidation be adopted and the four northern New England roads be included in System No. 1, New York Central, that system would become unduly, if not menacingly, large. It would then have 17,239 miles of railroad and \$694,256,409 of revenue, exceeding in each respect any of the other proposed consolidated systems, except that of the Pennsylvania. While the Commission has suggested as an alternative to a New England System the inclusion of the New York, New Haven & Hartford in "System No. 3—Baltimore & Ohio," the Committee feels that this would be an unnatural and unfortunate combination. The objections to it have already been discussed earlier in this report. Assuming the Committee's conclusions in this respect to be well taken and assuming further that the plan of a New England System is to be rejected, the Committee thinks that the only reasonable trunk line consolidation for the New Haven system is with the Pennsylvania. Here again, however, there would result, as in the case of adding the Boston & Maine

to the New York Central, an over-extended super system, exceeding in size the New York Central with the addition of the Northern New England roads. Such a swollen Pennsylvania System would embrace 14,239 miles of railroad and would have had in 1922 a revenue of \$827,020,870.

The railroads suggested for a New England consolidation represent 5 per cent of the total gross railroad revenue of the country. If turned over in part to such an enlarged New York Central and in part to an enlarged Pennsylvania, the two resulting consolidations, although constituting only 2 out of 19 proposed systems, would together constitute 27 per cent of the railroad gross revenues of the entire country. In the opinion of this Committee this situation would be unfortunate for the country as a whole and disastrous for New England. Such a Pennsylvania System would have lines of railway and exercise important control over transportation in fourteen states, viz., Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware, Maryland, District of Columbia, Pennsylvania, Ohio, Indiana, Michigan, Illinois and Missouri; the New York Central similarly in thirteen states, viz., Maine, New Hampshire, Vermont, Massachusetts, New York, Pennsylvania, New Jersey, Province of Ontario, Michigan, Ohio, Indiana, Illinois, and Missouri.

Not many students, either of business or government administration, would expect as satisfactory results for the public from the centralized management in Philadelphia of a railroad extending from Boston to Washington in the South, St. Louis and Chicago in the West,

and Mackinaw City, Michigan, in the North, or from the management in New York of a railroad extending from Vanceboro, Maine, to Pittsburgh, Southern West Virginia and to Cairo, Illinois, at the South, St. Louis and Chicago at the West, to the tip of the Michigan peninsula at Mackinaw City, and Canada and the St. Lawrence River at the North, as from the management of a consolidated New England System, with practically its entire mileage within New England, and with its policy shaped by New England men.

Our railroads and the interests of the local population at present served by them would be hopelessly lost in such over-extended and unwieldy transportation agencies. In transportation as in government it is always possible, and there is always danger, that a centralized authority will be developed attempting to exercise its jurisdiction over so vast an area, and upon such a numerous population as inevitably to lead to ignorance of and disregard for the wishes, welfare and interests of individuals. It is important to avoid this wrong tendency for, after all, the prosperity, happiness and contentment of any people is only the aggregate prosperity, happiness and contentment of its individual members.

CONCLUSION OF COMMITTEE AS TO CONSOLIDATION

The Committee is satisfied that such a compact railroad system as that represented in the proposed New England consolidation would involve a minimum of the evils and, with conditions as they are in New England, would produce a maximum of the benefits possible to result from consolidation under the provisions of the Transportation Act of 1920.

But the Committee believes that such consolidation is neither advisable nor equitably possible until each of the two major New England systems shall first have been rehabilitated and shall have shown the financial and operating results it is capable of producing under normal conditions and with restored credit.

REHABILITATION BY COOPERATION

NEW HAVEN REHABILITATION

The immediate problem under our nose in New England is not consolidation. It is the rehabilitation of our two major systems so that they can be lifted out of their present acute difficulties and give to New England industry and to the New England public the grade of transportation service that is vital if New England is to hold its place against the keen competition of other districts. Consolidation is not the immediate medicine needed by New England. Rehabilitation comes first.

Turning first to the New Haven, we briefly review the financial conditions of the road as it has already been described in this report. Since 1915 it has sustained and written off losses of \$40,546,840 on its outside investments. It is carrying on its books at cost price many outside investments which are of little value. The shrinkage is very large, including, as it does, such items as New York, Westchester & Boston, which brings in no income and costs the New Haven \$864,000 a year in interest on the guaranteed bonds, also the trolley investments some of which have but a nominal value.

During the past three years the Income Accounts have shown large deficits as follows:

Deficits after Interest Charges	
1920	\$4,276,726
1921	13,603,654
1922	5,309,759
<hr/>	
Total 3 years	\$23,190,139

The result of the losses in outside investments and deficits from operation is reflected in a large balance sheet deficit as of December 31, 1922. In 1921 the company wrote up its property investment account \$25,685,000 (net), to capitalize improvements made between 1880 and 1915 previously charged to Income, Profit and Loss and Operating Expenses, but after allowing for the effect of this write-up the Net Corporate Deficit including the \$2,581,667 Corporate Surplus of the Central New England Railway is \$22,750,010.

We have discussed the results of operation of the first four months of the present year, which show a deficit of \$4,999,483 after fixed charges. The road will be fortunate if it does not in the year 1923 have as large a deficit from operations as in 1922.

It is unnecessary to dwell upon the bearing of these facts upon the road's credit. The question of credit is vital. During the next twelve years the road has maturing indebtedness of \$127,824,201 (to the Federal Government \$88,546,500, bonds in hands of public \$39,277,701) with \$12,819,505 additional for leased lines. These maturities begin with \$5,587,348 * in 1924 followed by \$24,431,251 of the European loan of 1907 due April, 1925, less than two years away, which has already been once extended at the rate of 7%. In addition \$11,762,607 * of other indebtedness comes due during 1925.

* Includes obligations of leased lines and subsidiary trolley properties.

In our judgment only two alternatives present themselves as methods of procedure in rehabilitating the New Haven. One is rehabilitation through receivership. This method would be accompanied not only by the heavy expenses involved in receivership proceedings, but by a depressing effect upon all business activity in New England.

The other alternative is rehabilitation by cooperation, a voluntary reorganization of the company in which all New England will give its help, the public through the state governments, the stockholders, the bondholders, and the shippers served by the road — and we believe the Federal Government.

The advantages of the method of rehabilitation through cooperation speak for themselves. We believe the prompt and successful achievement of such a venture would give New England a new impetus. New England has shown courage and resourcefulness in the past. We believe New England is ready to do so again.

The Committee has worked out a constructive plan for rehabilitation which it presents in detail. This plan it should be understood is offered as a tentative suggestion, but it is the result of careful study and represents an effort to put into actual workable form what would otherwise be a mere statement of generalities.

As a first step in building our plan of rehabilitation by cooperation we have endeavored to arrive at an estimate of what the earnings of the New Haven should be in 1925 based upon the conditions and assumptions we shall set forth.

ESTIMATE OF EARNINGS IN 1925 UNDER NORMAL CONDITIONS

In our opinion the New Haven Railroad, if its operations can be conducted with a reasonable and attainable degree of efficiency to be arrived at in 1925, should earn in that year, if average business conditions and the present general average of rates prevail, a gross revenue from railway operations of about \$143,232,000 and a net revenue, before fixed charges, of about \$29,155,000. This net revenue after deducting \$21,640,000 for fixed charges would leave a surplus of income over all expenses and charges of about \$7,515,000.

We have considered this estimate with great care and we believe it is based upon a sound analysis of all material factors, and is thoroughly conservative.

We cannot compare to much advantage this estimate with a recent year because 1922 was the year of the strike in the textile industry and the coal strike which affected coal traffic and distorted the cost of locomotive fuel and also the year of the shop strike. 1921 was a year of acute business depression. The several years before 1921 were affected by war conditions and federal control. We give, however, in the following statement our estimate in comparison with the calendar year 1922 and in comparison with the overlapping year July 1, 1921, to June 30, 1922, which does not include the shop strike period:

NEW YORK, NEW HAVEN & HARTFORD R. R. CO. (INCLUDING CENTRAL NEW ENGLAND)

COMPARISON OF EARNINGS FOR YEARS ENDING JUNE 30, 1922, AND DECEMBER 31, 1922, WITH
ESTIMATE OF EARNINGS IN 1925 UNDER NORMAL CONDITIONS

	YEAR ENDING JUNE 30, 1922	Per Cent Expenses to Revenues	YEAR ENDING DEC. 31, 1922	Per Cent Expenses to Revenues	ESTIMATE OF EARNINGS IN 1925	Per Cent Expenses to Revenues
REVENUE						
Freight	\$64,227,084		\$66,157,967		\$73,814,000	
Passenger	49,595,777		49,443,460		53,889,000	
Mail	1,542,451		1,523,311		1,660,000	
Express	4,029,777		4,961,182		5,408,000	
Other Passenger Transportation	1,546,872		1,612,707		1,758,000	
Other Freight Transportation	772,550		832,650		933,000	
Total Transportation Revenue	\$121,714,511		\$124,531,277		\$137,462,000	
Dining Buffet and Other Incidental Passenger Revenue	1,904,966		1,985,289		2,164,000	
Demurrage and Other Incidental Freight Revenue	713,362		709,044		794,000	
Other Incidental Revenues	1,617,507		1,793,746		1,794,000	
Joint Facility Revenues	1,031,987		1,018,036		1,018,000	
Total Railway Operating Revenue	\$126,982,333		\$130,037,392		\$143,232,000	
EXPENSES						
Maintenance of Way and Structures	\$18,558,127	14.61	\$17,893,602	13.76	\$18,500,000	12.92
Maintenance of Equipment	25,854,031	20.36	27,495,877	21.14	26,096,000	18.22
Transportation	51,785,614	40.78	53,618,342	41.24	56,177,000	39.22
Other Expenses	6,406,980	5.05	6,198,271	4.77	6,399,000	4.46
Total Railway Operating Expenses	\$102,604,752	80.80	\$105,206,092	80.91	\$107,172,000	74.82
Net Revenue from Railway Operation	24,377,581		24,831,300		36,060,000	
TAXES AND RENTS						
Taxes	\$4,678,809		\$4,874,486		\$5,000,000	
Hire of Freight Cars (Net)	1,812,618		2,880,235		1,550,000	
Other Equipment Rents (Net)	Cr.-178,324		108,588		125,000	
Joint Facility Rent (Net)	4,274,008		4,111,110		4,200,000	
Uncollectible Railway Revenues	39,792		30,841		30,000	
Total Taxes and Rents	\$10,626,903		\$12,005,260		\$10,905,000	
Net Railway Operating Income	13,750,678		12,826,040		25,155,000	
Non-Operating Income (Net)	3,196,275 A		2,650,122 A		4,000,000	
Total Net Inc. Available for Fixed Charges	\$16,946,953		\$15,476,162		\$29,155,000	
FIXED CHARGES						
Rent for Leased Roads (Net)	\$2,843,561 A		\$2,843,621 A		\$2,844,000	
Interest	15,982,022		16,408,228		17,128,000	
Other Deductions	1,556,834		1,667,882		1,668,000	
Total Fixed Charges	\$20,382,417		\$20,919,731		\$21,640,000	
Per Cent Net Income to Fixed Charges	83.14		73.98		134.73	
Adjustments for Period of Federal Control	Cr.-993,570		Dr. 26,008			
Net Income	Def.-2,441,894		Def.-5,469,577		7,515,000	

NOTE A — This is a *Net* Item and excludes certain inter-company and leased line accounts. The exclusion of these items from both "Non-Operating Income" and "Rents for Leased Roads" makes a clearer and more logical statement in the opinion of the Committee. This accounts for the difference between these items for the year ending December 31, 1922, on this statement and on the Condensed Income Account, 1908 to 1922 (Exhibit A, opposite page 65).

BASIS OF ESTIMATE

The figures supporting this estimated surplus of \$7,515,000 after fixed charges are based upon:

An estimated increase in freight traffic over 1922 at the rate of 4% a year.

This means a ton-mile movement of about 3,383,000,000 compared with 3,020,000,000 ton miles in 1922, when the volume of freight handled by the New Haven reached about the lowest point during the last six years. The actual volume of freight traffic in the four months ending April 30, 1923, increased 8% over the same four months of 1922, despite the embargoes of 1923.

We believe also that there will be a gain in passenger traffic which we have estimated at 3% a year, and we have estimated that mail, express and other railway operating revenues will increase in similar proportions. The volume of passenger traffic in the first four months of 1923 has already shown a considerable increase (about 5%) over the same period of 1922.

We are assuming in our estimate of gross revenue that the average rates for freight, passenger, mail and express will remain at about the present level.

We are also assuming that the embargo policy which during 1922 seriously depleted the net earnings will be revised and put on a different basis; also that the nimble freight car will predominate on the New Haven system and bring the average freight car miles up to seventeen miles per day. The president of the road has advised this committee that it can be brought to nineteen miles per day.

We quote from his testimony :

“ But if we assume the approximation of nineteen miles which you could reach, although I am sure it is going to go above twenty when we get normal, in comparison with the average in prior years of fifteen, it means that heavy traffic will do the business of the New Haven road with something like 6,000 to 8,000 less cars, because of more rapid movement than would have been possible on the basis of selecting the lower number of miles per day.” (Committee’s Record p. 2571.)

In our estimate of “ normal ” operating expenses we have assumed there will be no important changes in the present scale of wages.

Expenses for Maintenance of Way & Structures we estimate at \$18,500,000, which is \$606,000 greater than in the year ending December 31, 1922, and substantially the same as for the year ending June 30, 1922, when these expenses appear to have been about normal. It must be borne in mind that repairs of road and structures need not necessarily increase materially on account of a moderate increase in train movement.

In our estimate of expenses for Maintenance of Equipment we are assuming that the cost of locomotive repairs can be brought down well below the average for 1922, when it was thrown quite out of line by the shop strike, and that the condition of equipment and the number of “ bad order ” freight cars will have been brought by 1925 to normal, so that 7,951 bad order cars will be restored to service and earning money.

Our estimate of Transportation Expenses assumes

that the cost of coal will be substantially the same as for the year ending June 30, 1922; that winter conditions will be normal, and that the traffic will be handled with reasonable, attainable efficiency. We have estimated that the Transportation Expenses incident to the movement of freight traffic will be increased over those of the year ending June 30, 1922, in direct proportions to our estimated increases in traffic, and that other Transportation Expenses will increase over 1922 to the extent of 75 per cent of our estimated increases in traffic. We have reduced certain items of cost, but only where they were clearly abnormally large in 1922.

Our estimate of net cost for rentals of freight cars has been based upon careful study, due allowance having been made for the additional "foreign" cars required for the additional traffic.

We have estimated that fixed charges will increase about \$720,000 over 1922, representing interest on an estimated annual expenditure of \$4,000,000 for additions and improvements to the property and equipment during 3 years.

We have estimated that the net "Non-operating Income" would increase from \$2,650,000 in 1922 to about \$4,000,000 in 1925. This estimate is based upon the fact that no dividends were paid in 1922 upon the capital stock of the New England Steamship Co. (which owns and operates the Fall River line and other Long Island Sound steamboat lines) or on the capital stock of the New York, Ontario & Western. The entire capital stock of the New England Steamship Co. and a majority of the stock of the New York, Ontario & Western are owned by the New Haven. The New

England Steamship Co., in the 12 months ending April 30, 1922, earned about \$850,000 over its fixed charges. The New York, Ontario & Western, during years when coal traffic was normal, has been able to pay 2 per cent dividends bringing in about \$583,000 annually to the New Haven. In our estimate of \$4,000,000 we have taken into account probable dividends from the above two sources, but have estimated that no revenue will be received by 1925 from stocks of the Boston & Maine or Rutland railroads, the investment in New York, Westchester & Boston, or from stocks of the various street railway properties. The Connecticut Company is showing a substantial surplus over its fixed charges, but its surplus income for several years to come will probably be needed to take care of its own capital requirements for additions and improvements and to pay off its floating debt.

IMPROVED OPERATION WILL BUILD UP TRAFFIC

A good, sound, thrifty management whether in railroading or manufacturing generally secures not a small part of its net results from the many little leaks stopped and the many little increases in efficiency gained. We have taken this into consideration but to a very minor extent in our calculations.

Our estimate of increase in freight traffic seems conservative partly because the New Haven has not been able to build up its freight business, during recent months at least, to what might have been possible, owing to the poor condition of its motive power and other operating conditions. The traffic department

which is the selling department has had little to sell in the way of surplus transportation and frequently nothing to sell because the operating department has been unable to take on additional business, or indeed to care for all the business pressed on the road by shippers. On a strong road the operating department, except rarely at a peak when all roads are overloaded, spends no time limiting traffic. On the contrary the traffic department is out soliciting additional business as hard as it can go and when successful the operating department cares for it and undertakes to give service satisfactory to the new shippers as a matter of course.

The shippers of a great deal of valuable trainload traffic originating in Northern New England, although the New Haven has the level route and the shortest by a hundred miles, are routing their cars over the Berkshire Hills and then down the Hudson River to New York and beyond, because they find that this circuitous up and down hill route gives the better service. If operating conditions on the New Haven improve, the traffic department cannot be expected to go out and bring this business back in a month or two, but continued good service and ability to handle it ought gradually to bring back at least a large part of it to the natural route possessed by the New Haven.

COOPERATION OF EMPLOYEES

The employees of this road are New England men. We firmly believe that under the right circumstances they will gladly lend a hand to make this railroad one of the best conducted roads in the country. It is but

a small percentage of men who are solely interested in getting. Most of us want to give as well as get, if our relations are on a friendly and sympathetic basis.

We feel sure that the New Haven Railroad can attain a standard of which we shall all be proud. It's a better game—more interesting. Let us all make up our minds to help,—shippers, travelers, officers, employees, public authorities, everybody. Putting in a stream of alibis why we are not what we want to be here in New England is dull stuff. It is n't half as interesting as getting all together as our fathers did at the opening of the railroad era and being what we would like to be.

CREDIT

It may be said if on a conservative estimate we figure a surplus of \$7,515,000, that will keep us out of the sheriff's hands, and is it not enough? It is not enough. In the first place this thirty-five per cent margin above fixed charges is an average figure. We are bound to have normal years, extra good years and extra bad years. Every time we have an extra bad year the road might not earn its fixed charges. If every few years a year came along when the road did not earn its fixed charges the road would have only a third- or fourth-class credit. If we want to make the New Haven a first-class road we must have a first-class credit and get it now. It is a tool we need to work with.

If at times the road cannot sell its securities at all and the rest of the time additional capital can be attracted only at excessive rates we can never get our feet on dry land.

To get first-class credit we must not only earn our fixed charges every year, but we must earn them by a good margin. When people find it interesting to discuss whether a railroad is going to earn its fixed charges, you may be sure the road's credit is already damaged. Good credit involves keeping so far away from the region of doubt that no one cares to hold a conversation on the subject.

Where is this line? By common consent and based upon many years' experience the rule for first-class railroad credit is that net earnings must average close to twice the fixed charges. The promise to pay of such a road will always be considered prime and will bring a high price. Come down to one and a half or one and a third and you have "boarding house" butter, come down to one and a quarter or one and a fifth and you have "worked over" butter. It is perhaps true that a road which has shown over a long period of years ability to earn once and a half times its fixed charges will gradually acquire confidence and a good credit, but certainly a road that is trying to rebuild its credit within a reasonable period of time must show a bigger margin than once and a half.

How are we going to establish a better relation between fixed charges and net earnings? It is no fault of the bondholders that the road has lost a lot of its capital, and the savings banks are the largest bondholders. It is clear, however, we must ask the bondholders, savings banks and all, to waive some of their claims.

It may be asked why does this Committee concern itself with the fixed charges of the New Haven or with

what should be done in regard to them. It is because to take no cognizance of the fixed charges of the New Haven and to present no plan for dealing with them would leave the conclusions of the Committee dangling in the air with no solution of our problem.

READJUSTMENT OF NEW HAVEN CAPITALIZATION

We have reached the conclusion that it is fair and necessary under all the circumstances to ask the bondholders to cut down their bonds \$76,000,000. All the bondholders cannot be treated alike as some of them hold bonds which are far from the firing line even under present circumstances—bonds, for example, like the Harlem River & Port Chester 4s of 1954. So it is not proposed to disturb bonds of this character. But about \$133,000,000 of bonds not so well secured we suggest should be cut forty per cent. About \$25,000,000 bonds which are still less well secured we suggest should be cut fifty per cent, and about \$17,000,000 other debenture bonds should be cut about sixty per cent.

We suggest that the holders of the bonds that are cut should be asked to take a new 5 per cent first preferred stock cumulative from January 1, 1927. This stock would be issued against 3½ per cent, 4 per cent and 5 per cent bonds to an amount equal to the amount that the bonds are scaled down. Against 6 per cent and 7 per cent bonds it would be issued to an amount equal to 120 per cent of the amount that the bonds are cut down. This as set forth in detail in Appendix T would cut the indebtedness of the New Haven Railroad

by \$76,006,640 and reduce the annual fixed charges by \$3,641,498.

This would reduce fixed charges of the road from \$21,640,000 to \$18,000,000 as compared with estimated earnings of \$29,155,000, a ratio between interest charges and average net earnings of one and six tenths, but this as we have pointed out does not go far enough to establish a first-class credit.

Next, therefore, we suggest that the present stockholders should be asked to come forward and undertake to raise \$15,000,000 of cash by buying or arranging for the purchase by others from the company of enough common stock at or about market prices to bring in the \$15,000,000.

Under our state laws today this stock cannot be sold by the company at less than \$100 per share. It is true when this stock was originally sold the purchasers paid at least \$100 per share for it and a great many paid much more. But to imagine this new stock can now be sold for \$100 per share would be like expecting a canvas-back duck to step out of a hen's egg. We recommend, therefore, that the legislatures of Connecticut, Rhode Island, and Massachusetts recognize today's reality by removing the old par value for the New Haven stock and permitting it to be sold for its market value.

It may be asked why not stick to the par value stamped on the common stock certificate and sell a preferred. If the preferred is put on equal footing with the preferred stock given the bondholders, it is diluting for the benefit of the common stockholders a stock created to compensate for the waiver of the superior right of the bondholders and does not seem fair. If it is made a second

preferred stock it seems to us it would be very difficult to sell. But if the road is to be rehabilitated, to be set up in solid financial condition and given a new orientation, it is believed the common stock would appeal to a large reservoir of capital which would be glad to come forward to subscribe for it.

The sale of this new stock is especially fair because if a stockholder wants to preserve his same proportion, he can take his share of the new stock, but if he is unable to do this he has still by assenting to the plan made an indirect contribution and yet retains a stock interest which under a receivership and an assessment he would lose altogether if he did not pay his assessment.

ATCHISON REORGANIZATION OF 1893

The rehabilitation of the Atchison Railroad Company in 1893 proved to be one of the soundest and most successful reorganizations ever undertaken in this country. In that case the common stockholders came forward and did their part by contributing ten dollars cash per share.

It is to be noted that the Atchison common stock sold at a good deal lower price than has been recorded for the common stock of either the Boston & Maine or the New Haven.

As the Atchison was in the hands of a receiver it was possible to wipe out any common stock refusing to contribute and so unanimous consent to the contribution was obtained. This cannot be done here.

Even after the reorganization and the paying in of the additional ten dollars per share the common stock

of the Atchison still sold for a time at less than today's prices of the common stock of either of our two railroads, and for less than five dollars above the new ten dollars paid in. But the reorganization was sound, first-class management was given the property, and today its credit stands as high as that of any railroad in the country.

We recommend that savings banks and other institutions and fiduciaries be given any necessary power to participate in the rehabilitation of the New Haven under the plan suggested by the Committee, and to hold for five years after the period of control by the trustees their present securities and any new securities they acquire by participating.

This \$15,000,000 to be secured by the sale of common stock could be used to buy in outstanding bonds and so further reduce capital or it more probably should be held in hand for future capital needs. In either case it will reduce charges or give the road some more cars or locomotives or other property to help earn the fixed charges. For the purpose of our calculation, we will consider it is applied to the reduction of charges by the purchase and cancellation of bonds. It would, we think, buy in at least enough outstanding bonds to reduce fixed charges seven hundred and fifty thousand dollars so we will deduct this sum from our last figure for fixed charges—\$18,000,000—and this brings us to fixed charges of \$17,250,000 compared with net earnings of \$29,155,000.

COOPERATION OF THE STATES

This, however, still does not go far enough. It may be asked why if this does not go far enough should we not "hit" the bondholders and stockholders harder for as much more as we need. The answer is that neither we nor anybody else, not even the states, have the power to "hit" either the bondholders or the stockholders. We are asking for the voluntary cooperation of the bondholders and stockholders in rehabilitating for the public good this property and setting it on its feet.

What, therefore, can we propose in order to get the New Haven to the point where it can be set up with the first-class credit that seems essential and what is to be the incentive to these bondholders and these stockholders to play their part?

Here we think the states can well cooperate.

We will say first that if any state help is to be given we recommend that the control and management of the Company be vested in trustees to be appointed to serve ten years by the several states, two by Connecticut, one by Rhode Island and two by Massachusetts.

We do this chiefly because if the states are to lend their credit then we think they should take control. We do not believe in a divided responsibility, part state trustees and part representatives of the stockholders. If this were done the responsibility would be neither here nor there. This board would be comprised of human men who could hardly be blamed for saying, and honestly believing, too, that if each side during a series of years had voted differently on a series of questions something different would have taken place

from what actually happened. We believe that the best policy will be all state trustees sitting in the limelight and one hundred per cent responsible to the states and to the public for their acts and the results. The trustees should be paid reasonable compensation; none of them should be executive officers but they should be responsible for the selection of the executive officers and their continuance in office and therefore at all times for the quality of the management and the policies of the company.

In our opinion state aid should be extended by each of the three states of Connecticut, Rhode Island, and Massachusetts undertaking to return to the road such portion of the taxes paid by the New Haven in any given year for state and local taxes within the state as may be required to meet any failure of net earnings to cover fixed charges for that year. We do not mean that the sums paid in local taxes should be returned to the railroad by the cities and towns but that the states should undertake the return of the tax money or such portion thereof as may be needed to restore a deficit in fixed charges.

The sum paid by the New Haven in taxes in these three states totalled for 1922 — \$3,569,934 divided as follows: Connecticut \$1,890,239, Rhode Island \$558,134, Massachusetts \$1,121,561.

This would make the total liability of Connecticut under such a guaranty applied to the year 1924, \$1,890,239, plus any increase in state or local Connecticut taxes levied during 1924 above the \$1,890,239 collected for the year 1922. In like manner and to the extent of the sums respectively levied in Rhode Island

and Massachusetts would the guaranty of these two states apply. It seems to us this is a fair and sound method of distributing the burden between these three states. If the taxes are relatively too high in one of these states it will pay relatively perhaps more, but why should it not if it is undertaking to collect a higher tax rate from the railroad in the majority of years when the guaranty, in our judgment, will cost nothing. This guaranty should last as long as the control through these trustees continues.

We will now suppose a year so bad that the full guaranty of the states of \$3,569,934 is called for. In order to reach the point where the states could be called upon at all, the net earnings of the road would have to drop, after the bondholders and stockholders had done their parts as above outlined, from our estimate of \$29,155,000 down to \$17,250,000. We think there is little likelihood of the earnings dropping to this figure of \$17,250,000 unless in some quite abnormal year, and still less down to the lower figure of \$13,680,000 which must be the case before the states could be called upon for their full guaranty. Indeed, if this road has \$75,000,000 of its bonds cancelled and \$15,000,000 fresh cash put in and operations are brought by the state trustees up to the operating results which we believe are attainable within a few years, then thereafter at least it is improbable that the states will be called on for any help under their guaranty.

It is clear that for a period while the road is being re-established, we suggest three years, no common dividends should be declared and thereafter during the last seven years of control by the trustees not

in excess of half the earnings of such years ordinarily applicable to dividends on the common stock. The preferred stock which represents the surrender of bonds should be subject to no restrictions on the declaration of its stipulated 5 per cent dividends if earned.

We also suggest that shippers should be asked to help for a time by reducing the present two days of free time for loading or unloading to one day—the second day to have a moderate demurrage charge of say two dollars.

The question whether bonds issued by the state trustees during their control should receive a state guaranty of principal and interest is a closer question but we are of opinion that if the state trustees decide to issue bonds they should carry a state guaranty as to principal and interest. All the people of these states are vitally interested in making this property serve them effectively at the least possible cost, and for the states to stand behind the road to the extent of the guaranty we have proposed and not to assist in enabling the company to raise at the lowest possible cost the new capital needed to perform the service which the people of these states require seems faint-hearted and on the whole an undesirable stopping point. The liability of the states on this guaranty would be pro-rated among them on the basis of the taxes paid by the road in the several states during the year preceding the issue of the bonds. If this is done it may be found a better method for the states to issue their own bonds and with the proceeds buy a like amount of bonds of the company of the same maturity and interest rate. In this way the money will be obtained at a less rate of interest and the liability of the states be correspondingly smaller. The amount to

be financed in this way on state credit could if desired be limited to the amount of bonds now outstanding which, after the readjustment we propose, will mature during the period of control by the trustees, plus, say, \$4,000,000 a year for additions and improvements.

COOPERATION OF FEDERAL GOVERNMENT

If the states are thus to cooperate in setting this road on its feet to enable it to function properly it seems clear that it is fair to ask the Federal Government to reduce its present rate of 6 per cent on the government war loan. This 6 per cent under the new setup with the much improved credit becomes too high. We think that a reduction from the present 6 per cent to 4 per cent would be reasonable and fair. This would still leave the government rate of interest on a basis comparable to that recently fixed by our Federal Government for our British war loan. We suggest that the states of Connecticut, Rhode Island, and Massachusetts proceed through their representatives to put forward this request for the cooperation of the Federal Government, and also request the government to fund its maturities into a long time loan.

This cooperation if secured on the part of the Federal Government would reduce the company's annual interest charges by a sum equal to 2 per cent on \$88,500,000, viz. \$1,770,000.

EARLY MATURITIES OF NEW HAVEN DEBT

We give now the indebtedness maturing from 1924 to 1935, including the obligations of leased and controlled lines:

YEAR	DUE U. S. GOVERNMENT	DUE OTHERS	TOTAL
1924	\$100,000	\$5,487,348	\$5,587,348
1925	4,390,000	31,803,858	36,193,858
1926	100,000	1,190,370	1,290,370
1927	100,000	2,840,370	2,940,370
1928	100,000	1,239,370	1,339,370
1929	100,000	893,370	993,370
1930	60,126,500	4,296,020	64,422,520
1931	8,160,000	1,172,900	9,332,900
1932	2,560,000	1,426,900	3,986,900
1933	4,360,000	709,900	5,069,900
1934	160,000	609,900	769,900
1935	8,290,000	426,900	8,716,900
Total	\$88,546,500	\$52,097,206*	\$140,643,706

* Includes \$1,186,800 Equipment Trust obligations now held by Director General of Railroads which are subject to resale.

If the maturities to the Federal Government are extended as we propose, we are left to deal with \$52,000,000 of other maturities of which more than half mature in 1925, consisting principally of the \$24,431,251 debentures of the so-called European Loan. The remainder of the maturities for the entire twelve-year period includes several million dollars of street railway bonds assumed by the New Haven in connection with the acquisition of street railway properties which in our opinion should be refunded or paid off by the street railway properties, a smaller amount of trolley bonds upon which the New Haven itself is not liable, and almost the entire balance consists of underlying bonds, equipment trust obligations, and bonds of leased lines, all of which the integrity of the system requires be paid. The holders of the European Loan, however, we think should receive 30 per cent in cash and should extend 30 per cent of their principal by taking in payment therefor new 6 per cent First and Refunding Mortgage bonds maturing in November, 1937. For the

remaining 40 per cent they will, under the committee's plan, receive preferred stock.

OTHER SUGGESTIONS

The New Haven Company has guaranteed dividends of \$4 a share a year on a total of \$6,300,000 (63,000 shares) of preferred stock divided as follows:

Boston Railroad Holding Co.	\$2,800,000
New England Investment & Security Co.	112,100
Springfield Railway Companies	3,387,900
<hr/>	
Total	\$6,300,000

An effort should be made so to deal with each of these issues as entirely to eliminate the guaranties by the New Haven Company.

The New Haven Company is in effect the guarantor of the rental (\$1,400,000 a year) under the lease from the Connecticut Railway & Lighting Company of its trolley and gas and electric properties. While \$350,000 of this is protected apparently fully by the rental on the sublease of the gas and electric properties, a balance of \$1,050,000 remains as a direct charge against the trolleys operated by the New Haven's subsidiary, the Connecticut Company. The Connecticut Company is now earning well in excess of its charges. But notwithstanding these facts, we think an effort should be made to find a basis on which the entire guaranty of the New Haven Company can be eliminated.

In fact all the trolley investments of the New Haven should be disposed of as soon as their fair value can be realized. The capital invested in them will thus become

available for the uses of the New Haven Railroad. In any such sale a special effort should be made to have the trolley properties provide for the payment in full of all mortgage bonds secured upon them. Such a sale, too, ought to afford an opportunity to procure a release of the New Haven from its guaranty of the Connecticut Railway & Lighting rental.

The New Haven and the Pennsylvania Railroad are joint guarantors of \$24,000,000 of 4½ per cent bonds of New York Connecting Railroad Company. The Connecting Company is unable to meet its interest without receiving abnormal allowances from the New Haven and the Pennsylvania, so that in fact the New Haven is being called upon under this guaranty. As the New Haven's liability here is unsecured, and so is of a lower grade than most of the bonds and debentures which under the plan are to be converted in part into preferred stock, an adjustment with the Pennsylvania should be sought under which the New Haven's responsibility for those bonds would take on, in part at least, the character of a contingent charge, ranking with the New Haven's preferred stock, rather than of a fixed charge.

STATE COOPERATION NOT NEW IN NEW ENGLAND RAILROAD HISTORY

It may be urged that it is a bold step to utilize state credit to help in the restoration of this railroad to a condition which will enable it to perform the service the public needs so badly. Perhaps it is. But the present situation is a menace to the welfare of the people of

these three states. The amount of the assistance proposed, if it should be all required, is not sufficient to cause any strain on the credit of these states and in our judgment is an essential part of the plan needed to provide these people and their industries with the service which it is in the public interest they should receive with the least possible delay.

In Massachusetts the State, believing that the welfare of its people demanded the construction of the more difficult and expensive lines west across the state, advanced more than three and one half million dollars to the predecessor of the New York & New England Railway to help it to reach the Hudson River.

In 1836 the State of Massachusetts to aid the Western Railroad (later the western half of the Boston & Albany) subscribed for one million dollars of its capital stock and subsequently loaned the road \$2,800,000 as further assistance.

In the case of the western predecessor of the Fitchburg Railroad (the Troy & Greenfield Railroad) the state advanced a total of \$29,257,913, principal and interest, mainly for the construction of the Hoosac Tunnel.

These grants of state and local aid were bold measures carried forward by enterprising men at a time when the resources of the state were almost insignificant compared with our resources of today. They were bold but they were wise. They gave New England an immediate and tremendous impetus which insured the successful growth of our industries, our population, and our well being for many decades. Before the coming of the railroads the town of Petersham

in Worcester County is said to have been bigger than Worcester. But Petersham, still untouched by a railroad, has been a charming but dwindling village now for nearly a hundred years, while the village of Worcester has grown to be a busy, prosperous city of 180,000 people.

On both the Western Railroad and its successor, the Boston & Albany, and also on the Troy & Greenfield Road and its successor, the Fitchburg Railroad, the state was represented by state directors for many years.

Compared with the boldness of our predecessors in utilizing the credit of their states and also the credit of many of the local communities for connecting links, to prevent New England from being left behind in the new era of railroad building, our present proposal in relation to our resources of today seems hardly to take courage enough to fill a thimble.

We have not had opportunity to develop the railroad history of our other New England states but we could undoubtedly find many instances where local credit, if not state, was pooled to construct needed lines or links in our New England railway systems.

LARGE PUBLIC EXPENDITURES FOR HIGHWAYS

Quite a good many public highways and bridges in the early days were built with private capital in return for the grant of tolls and if the states and communities had not taken over the building of roads we would have had more and more of our roads and bridges built with private capital. But first the local communities and within recent years the states also have supplied the

capital needed to construct the highways and have provided the great sums needed annually for maintenance.

Only to speak of recent years, since 1895, the six New England state governments have expended for the construction, reconstruction and maintenance of highways \$148,000,000. At the present time they are spending annually at the rate of \$23,000,000 a year, less than half of which is being returned in the form of motor vehicle fees. We have not obtained the local figures from all the New England states but the towns and cities in Massachusetts are spending additionally on the roads at least twenty-five million dollars a year. Our roads are necessary, yes, but not a whit more than our railroads.

EXTENSIVE USE OF PUBLIC CREDIT FOR MUNICIPAL IMPROVEMENTS

The use of public credit in the Metropolitan district of Boston alone since 1895 for water, sewers, and parks has amounted to eighty-two million dollars one hundred per cent essential, without dispute, so far at least as water and sewers are concerned, but besides running water our people if their welfare is to be conserved must be served by efficient modern rail transportation facilities.

Since 1894 the city of Boston has pledged its credit for approximately thirty-seven million dollars for subways and to improve rapid transit facilities.

In like manner other communities have not hesitated to solve the problems of their growing needs by the utilization of their public credit.

REHABILITATION OF BOSTON & MAINE

Our review of the financial condition of the Boston & Maine has shown that it is in weak condition and that there is immediate necessity for rehabilitation of its credit. In 1921 its deficit after interest charges was \$6,612,422. Although 1922 showed fixed charges earned (by the narrow margin of \$27,992) it has a deficit after fixed charges for the first four months of 1923 of \$4,632,471; and a substantial deficit for the current year seems inevitable. The road was reorganized in 1919 and the fixed charges reduced \$2,725,862 chiefly by the holders of leased line stocks taking various classes of first preferred stocks. The first preferred stocks have paid no dividends since July 1920 and the accumulated dividends on January 1, 1924 will be \$7,125,230. On that date the rate of dividend on all classes of first preferred stocks steps up twenty-five per cent in accordance with the terms of the reorganization agreement.

The Boston & Maine has heavy maturities in the next twelve years, a total of \$93,145,679 beginning with \$1,505,200 in 1924, \$5,194,200 in 1925, and \$10,720,200 in 1926.

We suggest a plan for rehabilitation by cooperation similar in its general outline to the rehabilitation plan for the New Haven already described.

As in the case of the New Haven, this plan is offered as a tentative suggestion in order to give a picture as to the way in which such a plan might be actually worked out.

As a starting point for the formulation of such a plan we begin with an estimate, based upon the conditions we shall set forth, for the year 1925.

ESTIMATE OF EARNINGS IN 1925 UNDER NORMAL CONDITIONS

We have analyzed with care the earning possibilities of the Boston & Maine Railroad and reached the conclusion that in 1925, assuming that its operations are conducted efficiently, the gross revenue from railway operations should be about \$86,180,000 under average business conditions, and that the net revenue before fixed charges should be about \$10,667,000. After deducting estimated fixed charges of \$7,414,000 there should remain, in our judgment, a surplus over all expenses and charges of \$3,253,000.

We believe this estimate is sound and not over sanguine.

As in the case of the New Haven, we cannot compare to much advantage these estimates with a recent normal year because 1922 was the year of the strikes in the textile industry and the coal strike which both affected coal traffic and distorted the cost of locomotive fuel, and also was the year of the shop strike, while 1921 was a period of acute business depression. The several years before 1921 were affected by war conditions and Federal control. We give, however, our estimate in comparison with the calendar year 1922 and in comparison with the twelve months from July 1, 1921, to July 1, 1922, which does not include the shop strike period.

BOSTON & MAINE RAILROAD

COMPARISON OF EARNINGS FOR YEARS ENDING JUNE 30, 1922, AND DECEMBER 31, 1922, WITH
ESTIMATE OF EARNINGS IN 1925 UNDER NORMAL CONDITIONS

	YEAR ENDING JUNE 30, 1922	Per cent Expenses to Revenues	YEAR ENDING DEC. 31, 1922	Per cent Expenses to Revenues	ESTIMATE OF EARNINGS IN 1925	Per cent Expenses to Revenues
REVENUES						
Freight Revenue	\$48,164,234		\$48,316,267		\$53,084,000	
Passenger Revenue	22,916,914		22,556,855		23,578,000	
Mileage	914,466		995,185		1,055,000	
Express	2,253,871		2,919,859		3,155,000	
Other Passenger Transportation	2,168,291		2,266,538		2,403,000	
Other Freight Transportation	735,789		751,106		826,000	
Waterline Transportation	18,741		. . . . .		. . . . .
Total Transportation	\$77,172,306		\$77,805,810		\$84,101,000	
Incidental Revenue Passenger	463,833		461,238		489,000	
Incidental Revenue Freight	583,506		572,405		629,000	
Other Incidental Revenues	766,685		957,762		958,000	
Joint Facility Revenues	2,374		2,908		3,000	
Total Railway Operating Revenues	\$78,988,704		\$79,800,123		\$86,180,000	
EXPENSES						
Maintenance of Way and Structures	\$12,038,245	15.24	\$11,076,742	13.88	\$12,000,000	13.92
Maintenance of Equipment	15,012,657	19.01	16,112,965	20.19	15,563,000	18.06
Transportation	36,834,916	46.63	36,445,903	45.67	38,793,000	45.01
Other Expenses	3,633,995	4.60	3,418,787	4.29	3,419,000	3.97
Total Railway Operating Expenses	\$67,519,813	85.48	\$67,054,397	84.03	\$69,775,000	80.96
Net Revenue from Railway Operation	11,468,891		12,745,726		16,405,000	
TAXES AND RENTS						
Taxes	\$2,298,676		\$2,580,677		\$2,850,000	
Lease of Freight Cars (Net)	3,297,606		3,740,974		3,736,000	
Other Equipment Rents (Net)	Cr.-49,373		Cr.-18,350		Cr.-18,000	
Joint Facility Rent	62,855		Cr.-38,409		Cr.-38,000	
Uncollectible Railway Revenues	8,420		5,094		5,000	
Total Taxes and Rents	\$5,618,184		\$6,269,986		\$6,535,000	
Net Railway Operating Income	5,850,707		6,475,740		9,870,000	
Non-Operating Income	625,741		797,209		797,000	
Total Net Inc. Available for Fixed Charges	\$6,476,448		\$7,272,949		\$10,667,000	
FIXED CHARGES						
Interest for Leased Roads	\$920,376		\$920,376		\$920,000	
Interest	5,937,532		6,004,691		6,455,000	
Other Deductions	61,595		39,428		39,000	
Total Fixed Charges	\$6,919,503		\$6,964,495		\$7,414,000	
Per Cent Total Net Income to Fixed Charges	93.60		104.43		143.88	
Adjustment for Period of Federal Control	Cr.-470,595		280,462		. . . . .
Net Income	27,540		27,992		3,253,000	

BASIS OF ESTIMATE

The figures supporting this estimated surplus of \$3,253,000 are based upon an estimated increase in freight traffic of three and one-third per cent a year, or a ton mile movement of 2,959,000,000 as compared with 2,690,000,000 ton miles in 1922 when, largely due to operating difficulties, the volume of freight handled by the Boston & Maine reached about the lowest point during the last seven years. The road actually produced 3,705,000,000 ton miles in 1920. This, it is true, was a period of very active business, but our estimate is for 1925, five years later, and is based upon 2,959,000,000 ton miles, or actually 746,000,000 less than 1920. We believe that there is likely to be some recovery in passenger business from the low level of 1922, and have estimated this at two per cent a year. We have also estimated that mail, express, and other railway operating revenues will increase in similar proportions. The actual passenger revenue in the 4 months ending April 30, 1923, increased eight per cent over the same four months of 1922. While this was doubtless due, in part, to the severe winter and the consequent reduction in motor car competition, we think these last 4 months' operations reflect a general improvement in business in Boston & Maine territory and that a moderate improvement in passenger traffic on the Boston & Maine is probable during the next 3 years.

We are also assuming in our estimate of gross rev-

enue that the average rates for freight, passenger, mail, and express will remain at about the present level.

“ Normal ” expenses for Maintenance of Way and Structures we estimate at \$12,000,000. This is \$923,000 greater than for the year ending Dec. 31, 1922, substantially the same as for the year ending June 30, 1922, and somewhat greater than the average for the last five years, 1918 to 1922 inclusive, when the volume of traffic averaged considerably more than in the Committee’s estimated “ normal year ” (1925).

In our estimate of expenses for Maintenance of Equipment we are assuming that the cost of locomotive repairs can be brought down somewhat below the average for 1922 which was adversely affected by the shop strike and that the condition of the equipment and the number of “ bad order ” freight cars will by that time be brought into satisfactory shape.

It is probable that the Boston & Maine should purchase several thousand additional freight cars, but this estimate does not take into account the possible effect of the ownership of additional cars.

Our estimate of Transportation Expenses assumes that the ten additional heavy locomotives already ordered will be in service; that there will be no important change in the present scale of wages; that the cost of coal will be about the same as in the year ending June 30, 1922; that winter conditions will be normal and that the traffic will be handled with efficiency. We have also assumed that the Transportation Expenses incident to the movement of freight traffic will be increased over those of the year ending June 30, 1922, in direct proportion to our estimated increase in traffic

and that other Transportation Expenses will increase over 1922 to the extent of seventy-five per cent of our estimated increases in traffic. We have reduced certain other minor items of cost, but only where they were clearly abnormally large in 1922.

Our estimate of net cost for Rentals of Freight Cars has been based upon careful study, due allowance having been made for the additional "foreign" cars required to carry the estimated additional traffic, and for a reasonably efficient car movement.

We have estimated that fixed charges will increase by about \$450,000 over 1922 representing interest on an estimated annual expenditure of \$2,500,000 for additions and improvements to the property and equipment during three years.

Our estimate of \$3,253,000 net income would give a margin in an average year of about 44 per cent over fixed charges. This margin, however, is too close to establish a stout credit for the road. In order to build a thoroughly sound credit, the road should be able to earn in an average year approximately twice its fixed charges of \$7,414,000.

EARLY MATURITIES OF BOSTON AND MAINE DEBT

The necessity for the prompt re-establishment of first-class credit for the Boston & Maine is emphasized by its capital requirements for refunding its present indebtedness during the next 12 years:

YEAR	DUE U. S. GOVERNMENT	DUE OTHERS	TOTAL DUE
1924 . . . . .	.....	\$1,505,200	\$1,505,200
1925 . . . . .	.....	5,194,200	5,194,200
1926 . . . . .	.....	10,720,200	10,720,200
1927 . . . . .	.....	5,637,200	5,637,200
1928 . . . . .	.....	4,425,200	4,425,200
1929	\$28,303,500	11,984,200	40,287,700
1930	5,443,979	4,951,700	10,395,679
1931	3,049,000	1,117,200	4,166,200
1932 . . . . .	.....	2,775,200	2,775,200
1933 . . . . .	.....	5,975,200	1,975,200
1934 . . . . .	.....	2,826,200	2,826,200
1935	5,000,000	725,200	5,725,200
Total	\$41,796,479	\$57,836,900*	\$99,633,379

* Includes \$1,826,400 Equipment Trust obligations now held by the Director General of Railroads which are subject to resale.

It will be noted that the requirements for refunding during the next three years are approximately \$17,400,000 and that in the year 1929 the maturities due the public are \$11,984,200 besides the maturity of \$28,303,500 due the government.

SUGGESTED PLAN FOR EXTENSION OF DEBT

The holders of \$46,000,000 of these maturing bonds should cooperate with the rehabilitation plan by assenting to an extension for twelve years at the present rate of interest except that for the period of the extension bonds now receiving a coupon rate of less than five per cent shall be brought up to that level, and bonds now receiving a coupon rate of more than six

per cent shall be brought down to six per cent for the period of the extension. We exclude from this extension the equipment trust obligations and approximately \$1,838,000 of underlying first mortgage bonds. A detailed list of the bonds to be extended appears in Appendix U. The extension of these bonds will cost the road some \$300,000 increase over its present fixed charges but will save the banking expense for refunding and will assist the road to its feet. The bondholders during the recent receivership contributed nothing, and as their principal is to be made secure and the market value of their bonds enhanced it seems fair they should cooperate to this extent. We recommend that savings banks and other institutions and fiduciaries be given any necessary powers to make this extension and to hold the extended bonds to maturity.

COOPERATION OF THE STATE

Turning now back to our estimated surplus of \$3,253,000, or 44 per cent above fixed charges, it is clear that while this average would enable the road to earn its fixed charges in an average year yet it is not margin enough for an abnormally bad year or to build a first-class credit.

Accordingly we suggest that the states served by the Boston & Maine, viz., Maine, New Hampshire, Vermont, and Massachusetts should undertake to return to the Boston & Maine such portion of the taxes paid to or within these several states as may be needed to enable the road to meet any failure of net earnings to cover fixed charges for that year.

The taxes paid by the Boston & Maine during 1922 to the New England states and the cities and towns within the respective states were—Maine \$311,522, New Hampshire \$846,421, Vermont \$84,432, Massachusetts \$1,245,673, total \$2,488,049.

It is not proposed that the cities and towns should be called upon to return the taxes paid, but that each state should undertake to return pro rata its share of the tax money paid to the state or the cities and towns within the state or as much of its share as may be needed to cover any deficit in fixed charges.

If state cooperation is to be thus given we believe that the control and management of the company should be vested in state trustees to be appointed for ten years, by the several states, one by the State of Maine, two by the State of New Hampshire, one by the State of Vermont and three by the State of Massachusetts. We do not believe in divided responsibility and therefore do not suggest that some of the trustees should be selected by the directors or stockholders of the Boston & Maine. We believe it will be best to have all trustees appointed by the states and unreservedly responsible to the states and to the public for what they may do or leave undone.

NO READJUSTMENT IN CAPITALIZATION REQUIRED

It may be asked why we do not suggest cutting down the bonded indebtedness and substituting preferred stock, as in the case of the New Haven. The question is perhaps open to argument but our estimated ratio of net earnings to fixed charges on the Boston & Maine is somewhat better—1.44 as compared with 1.35 for

the New Haven. There has also been an actual destruction or permanent loss of a large amount of capital on the New Haven which seems to make fair a concession on the part of the New Haven bondholders before the states step in to help.

The "first preferred" stockholders of the Boston & Maine who hold the \$38,817,900 par value of "first preferred" stock formerly held leased line stocks, the dividends on which were guaranteed by the Boston & Maine and constituted a fixed obligation of the company. As the result of the receivership inaugurated in August, 1916, these holders of leased line stocks waived their rights and took first preferred stock upon which they are receiving no dividends and have received no dividends since 1920.

The present so-called "preferred" shareholders of the Boston & Maine hold \$3,149,800 par value of an inferior class of preferred stock because at the time of the receivership they subordinated their right to dividends to the "first preferred" stock so as to assist in the cutting down of the fixed obligations of the company and also consented to a reduction of their dividend rate from 6 per cent to 4 per cent for five years. They are at present receiving no dividends and have received none since 1913, except that dividends aggregating 6.67 per cent were paid on this stock in 1920.

Under the circumstances we are not inclined to ask either the first or second class of preferred stockholders to make a further sacrifice at the present time.

Neither the first preferred stock nor the second class of preferred stock involve a fixed charge on the Bos-

ton & Maine and so do not constitute a factor adverse to its financial stability.

At the time of the receivership the common stockholders contributed nothing and made no sacrifice; in fact their position was improved by the concession of the holders of the leased line stocks. It would be fair, therefore, to ask the common stockholders to buy new common stock just as we are asking the New Haven stockholders to buy new common stock, and we have considered quite seriously doing so, but we have come to the conclusion that in this case results commensurate with the effort cannot be obtained. After counting out the New Haven's holdings of Boston & Maine stock, we should get from the remaining Boston & Maine stockholders less than \$2,000,000, if they contributed on the same basis that gives us \$15,000,000 in the case of the New Haven. We think, however, that it should be provided, as a means of further strengthening the company, that for the first three years of control by the trustees no common stock dividends be paid, and that during the last seven years not more than half the amount applicable to dividends on the common stock be actually declared and paid thereon.

We have given much thought to the question whether bonds issued by the state trustees should carry the guaranty of the states for principal and interest, and have come to the conclusion that it is in the best interests of the public that this be done. If the states are to cooperate in financing and to appoint trustees, they will want to insure the success of the plan. The amount of bonds so to be guaranteed could if desired

be limited to say \$2,500,000 a year for additions and improvements, plus whatever relatively small amount will be required for the refunding of those bonds now outstanding which after the proposed plan has been put into effect will mature within the period of control. The liability of the states would be pro-rated among them on the basis of the taxes for the year preceding the issue. It might be preferable for the states to issue their own bonds and with the proceeds to buy bonds of the road of like interest rate and maturity. This is not essential, but it would save the road interest and would mean a lesser liability for the state, since the state bonds would bring a higher price.

COOPERATION OF FEDERAL GOVERNMENT

We further suggest that the Federal Government be requested to aid in strengthening the credit of the Boston & Maine by taking bonds of longer maturity, bearing 4 per cent interest, in place of those it now holds.

COOPERATION OF SHIPPERS

We think that shippers probably should be asked to lend their aid by reducing the present two days of free time for loading or unloading to one day, the second day to have a moderate demurrage charge of two dollars. This will quicken car movement and help to offset the road's per diem debit balance.

DEVOTION AND COURAGE OF EXECUTIVES OF NEW ENGLAND ROADS

This Committee wishes to record that as the result of nearly a year's contact it has learned to appreciate the tremendous burden carried now for so long by the chief executives of our New England railroads and more especially the presidents of our two largest systems. Taking charge of their respective properties at a time when many adverse factors and especially financial difficulties had already developed, they have carried their burdens through the war and through the much more difficult circumstances which have developed since the war with unsparing devotion and great courage. The fight to a large extent has been a lonely struggle against heavy odds, but the cause in the main has been the cause of New England. It is time the people of New England appeared on the scene to lend their aid.

CONCLUSIONS

Based upon its ten months' study of the New England transportation problem this Committee has reached the following conclusions:

GENERAL FINDINGS

(1) That rail transportation, besides its essential passenger side, constitutes a plant facility absolutely necessary to the maintenance and development of our industries. The locomotive and track are just as necessary to our factories, with possibly a few exceptions, as the main engine which drives the factory machinery. Efficient and economical management of our rail systems is quite as important to us as efficient and economical management of our factories. That the locomotive has been under different ownership and that it has been somebody else's job to run it may have tended to obscure but not to change this fact.

(2) That due to New England's situation in the northeast corner of the country and the consequent long in-and-out rail haul and because seventy-five per cent of our industrial enterprises are either at or close to the coast line with its many large and small harbors, it is vital to New England's future welfare that a close, friendly, and harmonious cooperation should prevail at all times between our rail and water transportation.

(3) That the continuance of the steel-railed highways of New England in condition to render good serv-

ice to its people is just as important as the maintenance and improvement of the "ways" more commonly described as highways.

(4) That this coordinating of our rail and water transportation in New England is not merely for the purpose of facilitating exports and imports as is largely the case with the territory back of the other ports of the country, but is vital as a means of securing our supplies from other sections of this country and sending back the products of our factories in exchange.

(5) That we produce no coal or grain or iron or wool or cotton or other basic raw materials which the rest of the world must have, so that to get them it will pay at least any reasonable cost of transportation.

(6) That transportation costs to us constitute a weighted factor in our welfare to which our industries are extremely sensitive. The manufacture of locomotives, well begun in New England, left us many years ago because of the transportation cost of the raw materials. The coal and iron mines of Pennsylvania are still there and likewise for all time the cotton fields of the South and the wonderful corn and wheat producing farms of the great Mississippi valley. If New England's industries are ever forced into a position where they chiefly depend on standard trunk line rates, they are bound to suffer, but if New England can hold its own knife and fork and feed itself to a balanced ration of standard rates, differential rates and water rates, we see no reason why we should not maintain full bodily vigor and continue to meet changing conditions by new adjustments of our industries and enterprises.

SPECIFIC FINDINGS

(7) That the Bangor & Aroostook Railroad is in good operating and financial condition and serving its territory adequately and well.

(8) That the Maine Central Railroad is performing excellent service and is not confronted with any financial problem threatening its usefulness.

(9) That the Rutland Railroad is a well operated property and, though not paying dividends, is being well maintained and gradually improved from year to year by the application of surplus earnings.

(10) That the Boston & Albany Railroad is giving the industries tributary to it a high grade of service.

(11) That the Central Vermont is performing good service and that its stock control by the Grand Trunk and the operating relations of the two systems place upon the Grand Trunk management the first duty to offer the Central Vermont financial assistance if needed. The same is true of the Atlantic & St. Lawrence—the Grand Trunk subsidiary extending to Portland.

(12) That the Boston & Maine is inadequately serving its territory and is in such financial condition that it must receive aid before it can be expected to properly care for the people and industries depending upon it.

(13) That the New Haven Railroad is affording inadequate service to the people and the industries located on the system and that its financial condition is unsatisfactory and must be set in order and its credit re-established before it can be expected to properly care for the people and industries depending upon it.

CONSOLIDATION

(14) That if trunk line consolidation should be made compulsory, the Boston & Maine, and as an essential consequence the Maine Central and the Bangor & Aroostook, should be consolidated with the New York Central and the New Haven with the Pennsylvania.

(15) That in the opinion of this Committee, however, New England should be allowed to run its own railroads, and should not turn one over to the Pennsylvania with its management centered in Philadelphia, nor the others to the New York Central with its management centered in New York City. Trunk line ownership would substantially eliminate competition among the trunk lines for New England's westbound business, and with it one of the greatest incentives to good service. The lower rates through the northern gateways would be imperilled. Cooperation with water transportation to the Pacific Coast via the Panama Canal, and to midwestern points via Savannah and other southern ports, might be adversely affected by the desire of the trunk lines to get the long haul which the all-rail route would give them. New England should oppose the taking over of any of its existing lines by the trunk lines. The Boston & Albany should remain, however, as a part of the New York Central system and the Central Vermont and the Atlantic & St. Lawrence as parts of the Grand Trunk system.

(16) That if there is to be a New England system the Rutland Railroad should be part of the New England system or at least the ownership of it be divided equally between the New York Central system and

the New England system; the New York, Ontario & Western Railroad should remain in the New England system. These two roads give New England a window on the Great Lakes.

REHABILITATION BY COOPERATION

(17) That the terms of the Transportation Act do not make compulsory any plan that finally may be promulgated by the Interstate Commerce Commission. That accordingly a consolidation may not come about next year or the year following or for five years, or indeed ever.

(18) That New England from any point of view, whether in favor of a New England consolidation or even a trunk line consolidation or of no consolidation at all, should not sit on the doorstep waiting to be taken in or waiting for conditions to improve. It is in the interest of everyone in New England, whether a shipper, a traveler or a security holder in one of these roads, that we should get together and set our two major systems in order at once.

(19) That our New England savings banks, which are particularly the subject of solicitude on the part of our states, hold a hundred million of the securities of these two roads, and that this fact alone seems to justify the cooperation of our states in a plan for putting these two transportation companies on a sound basis.

(20) That the restoration of the New Haven and Boston & Maine properties to sound health cannot be accomplished without fully restoring their credit. No half-way measures should be taken.

REHABILITATION OF THE NEW HAVEN

(21) That the existing common stockholders of the New Haven should subscribe or undertake to have subscribed at or about market value an additional amount of common stock sufficient to bring into the road's treasury \$15,000,000, which should be applied in part at least to the reduction of the road's indebtedness by payment of outstanding bonds or their purchase at the lowest price at which they are obtainable.

That in order to enable this to be done, appropriate legislation should be enacted to place the common stock on a non-par basis in order to permit the issue and sale of additional common stock at less than the present par.

(22) That the bondholders of the New Haven Company are not in comfortable position today and should be willing to cooperate with the states to put the New Haven on a stable basis and as their contribution to such a plan, should be willing to exchange \$75,000,000 par value of their securities for a first preferred stock which shall have its rights to dividends and principal placed ahead of the rights of the common stockholders, as more particularly set forth in Appendix T. The bondholders should also, as set forth in that appendix, extend \$7,329,000 par value of their holdings to November, 1937, at six per cent.

(23) That the Federal Government be requested to fund the New Haven Company's indebtedness to it for a reasonable period at four per cent interest.

(24) That the power to control the New Haven Company and its operations and finances be vested

in a board of five trustees appointed for ten years by the several states, two by the State of Connecticut, one by the State of Rhode Island and two by the State of Massachusetts.

(25) That if the New Haven is fully to rehabilitate its credit so that it can promptly and efficiently serve the communities dependent on it still more must be done; that it is not enough to make its ability to meet its fixed charges a probability—it should be made a practical certainty. Under the circumstances this cannot be satisfactorily accomplished without the co-operation of the states.

(26) That the states of Connecticut, Rhode Island, and Massachusetts shall undertake that in any year in which the earnings of the New Haven do not equal its fixed charges, each will refund such portion of the total taxes levied by it and locally within its limits during that year in which the deficit occurs as may be necessary to meet the deficit, but there shall not thus be refunded by any state more than the amount of such taxes. We do not mean that the cities and towns shall be called upon to repay taxes levied by them, but merely that the total of taxes levied within the state shall be the measure of the contribution of the state.

(27) That the states of Connecticut, Rhode Island, and Massachusetts, in order further to ensure the stability and credit of the New Haven Company, undertake to guarantee principal and interest of a specified amount of bonds to be issued by the state trustees during the period of control, this amount to be calculated to cover the amount of the bonds now outstanding which after the readjustment we propose will mature

during the period of control by the trustees plus, say \$4,000,000 a year for additions and improvements, the liability of the states to be several, and to be apportioned among them in the ratios of the taxes levied on the New Haven by them and locally within their limits during the year preceding the issue of the bonds.

REHABILITATION OF THE BOSTON & MAINE

(28) That the bondholders of the Boston & Maine should be glad to assist in its rehabilitation, and should be asked for this purpose to extend for twelve years some \$46,000,000 of bonds maturing prior to December 31, 1935, as set forth in more detail in Appendix U.

(29) That the Federal Government be requested to exchange the bonds of the Boston & Maine that it holds for other bonds bearing a lower rate of interest and of a longer maturity.

(30) That the entire power to control the Boston & Maine and its operations and finances be vested in a board of seven trustees, appointed for ten years by the several states, two by the State of New Hampshire, one by the State of Maine, one by the State of Vermont, and three by the State of Massachusetts.

(31) That the states of Massachusetts, New Hampshire, Maine, and Vermont shall undertake that in any year in which the earnings of the Boston & Maine do not equal its fixed charges each will refund such portion of the total taxes levied by it and locally within its limits during such year as may be necessary to meet the deficit, but not more than the total amount of such taxes. We do not mean that the cities and towns shall be called upon to repay taxes levied by them, but

merely that the total of taxes levied within the state shall be the measure of the contribution of the state.

(32) That the states of Massachusetts, New Hampshire, Maine, and Vermont, in order further to ensure the stability and credit of the Boston & Maine, shall undertake to guarantee principal and interest of a specified amount of bonds to be issued by the state trustees during the period of control, this amount to be calculated to cover the bonds now outstanding which after the plan we propose has been put into effect will mature during the period of control by the trustees, plus, say \$2,500,000 a year for additions and improvements, the liability of the states to be several and to be apportioned among them in the ratios of the taxes levied on the Boston & Maine by them and locally within their limits during the year preceding the issue of the bonds.

FINAL

(33) We suggest that committees be appointed by the several states to act jointly in formulating a detailed program for the rehabilitation of the New Haven and Boston & Maine systems, and if such joint Committee receives from the stockholders and bondholders reasonable assurance of cooperation a special session of the legislature of each of the six New England states should be called to meet in October for the purpose of dealing with the rehabilitation of these two railroad systems.

Vermont

JAMES F. DEWEY, Chairman

WALTON F. ANDREWS

RALPH M. BUCK

N. NELSON JACKSON

HUGH J. M. JONES

New Hampshire

LESTER F. THURBER, Chairman

CLARENCE E. CARR

BENJAMIN W. COUCH

ARTHUR H. HALE

JAMES P. RICHARDSON

Massachusetts

JAMES J. STORROW, Chairman

CARL DREYFUS

ADOLPH W. GILBERT

FRANK H. WILLARD

Rhode Island

GEORGE L. CROOKER, Chairman

HOWARD W. FITZ

WESLEY F. MORSE

EVERETT E. SALISBURY

WILLIAM TRAFTON

Connecticut

E. KENT HUBBARD, Chairman

STANLEY H. BULLARD

FREDERICK L. FORD

EDWARD O. GOSS

GEORGE S. STEVENSON

HOWARD G. KELLEY, Technical Adviser

Reservation of New Hampshire Committee

We the undersigned members of the Committee sign the report with the reservation that we dissent from the conclusions reached by the Committee to the effect that subsequent to the success of the plan for rehabilitation of the New Haven and the Boston & Maine Railroads there should be a consolidation of the New England railroads into a regional group as set forth in the report.

We do not believe that there should be any consolidation of New England railroads at the present time.

We believe that the two major New England railroads can obtain substantial rehabilitation by the plan described in the report, but we believe that if consolidations must then follow, they should be with the trunk lines.

The government offers assistance to financially weak railroads of the country by annexation to the financially strong trunk lines. We believe that the two major New England railroads are the fairest of examples of financially weak railroads in need of the financial strength of the trunk lines. By reason of additional operating costs inherent in New England, the New England railroads will always have to carry an excess load. If the government is willing to distribute through financially strong trunk lines our excess burdens of motor truck competition in congested territory, our burden of terminal costs, switching charges, fuel costs and the short hauls, we cannot in the long run afford to decline the offer in justice to New England industry.

The example of the efficiency of service of the Boston & Albany Railroad as shown in detail in the report leads us to abandon all fear of outside control. We think that efficient and prompt service with adequate facilities throughout New England will automatically take care of the Canadian Gateway problem, that the port developments should be made by the states, or by the states and the steamship lines together, and not by the railroads, and that the

coastwise shipping should be independent and competitive for the good of New England industry.

We do not believe that the New England transportation properties should be put on the trunk line bargain counter, nor do we think that the government would, or could if it would, force trunk line consolidations upon any terms which would constitute confiscation of property, the value of which has already been tentatively determined by government agency.

LESTER F. THURBER, Chairman
CLARENCE E. CARR
BENJAMIN W. COUCH
ARTHUR H. HALE
JAMES P. RICHARDSON

Statement of Maine Committee

We concur in the findings and conclusions of the report in respect of the choice between proposed plans of railroad consolidation, if some form of consolidation be required. We feel bound to state, however, that in our judgment the interests of Maine would be adversely affected by the adoption of any form of consolidation considered by the Committee.

CARL E. MILLIKEN, Chairman
CHARLES E. GURNEY
EDWARD W. WHEELER
L. E. MCINTIRE
EDWIN M. HAMLIN

Statement of Philip Dexter

BIARRITZ, June 30, 1923.

GOVERNOR COX, State House, Boston, Mass.

A copy of the report of the Committee appointed to consider the railroads has been forwarded to me. While I agree with much of it there are portions from which I dissent as follows:

Our principal railroads are unable to earn enough to maintain their credit because present wages and car hire leave insufficient net earnings but discussion of delay in car movement is futile. Whenever a car is received there is immediately a question whether to make up a train or wait for more cars and pay rentals. The operating officers are quite aware of this and in my opinion have shown good judgment in handling cars. It is unfair to measure operating efficiency by car delays without regard to the conditions under which business must be done and idle to calculate earnings upon an improvement in car movement which would cost far more than it would save. The nature of the railroad business in New England will always make it impossible to attain the rapidity of movement which other railroads can secure.

With respect to the New Haven it is unfair to lay stress upon the losses of capital which have occurred. The value of the property which remains and which is devoted solely to railroad purposes, is sufficient to maintain high credit if it were possible to earn five per cent on that value. It is a question of earnings not of capital and the New Haven is unable to get the earnings because of the high cost above mentioned. The road is as efficiently operated as circumstances permit and its failure to secure sufficient earnings is due to causes beyond the control of its officers.

It is in my judgment a mistake for the committee to recommend any plan of financial reorganization such as is out-

lined in the report. I think the plans are inadequate and the committee insufficiently informed on this subject to enable it to formulate a plan without further study. It is not properly within our province and we have not given it sufficient attention.

With respect to consolidation I agree that if the matter can be adjourned for a time we shall be likely to reach a wiser conclusion but if that is impossible it seems to me clear that the interests of Massachusetts and of New England will be injured by a consolidation of our railroads into one system. The danger of such a step is alarming. It would in my opinion result in increased rates which would hurt our industries. The evidence taken by the committee establishes to my mind that a New England railroad will be even more unable to give good service than our present roads and will be from the beginning on the verge of financial collapse. A consolidation of our roads with trunk lines on the other hand is promising. There are undoubtedly objections to either course but it is clear from the evidence that the interests of everybody concerned which means the whole population of New England will be far better served by a consolidation with the trunk lines. The New York Central has found it profitable to give good service to the industries on the line of the Boston & Albany. It will be equally advantageous to trunk lines to build up industry along our other road then the eventual profit will go to them. I am satisfied that the danger of trunk line control has been much exaggerated and can easily be overcome while the more serious danger inherent in a New England consolidation has not received enough attention.

There can be no doubt that the port of Boston and the co-ordination of the railroads and their terminals should be taken in hand at once and I am in accord with that part of the report though the subject would seem to require further study.

There are other matters of minor consequence with which I will not trouble you now.

PHILIP DEXTER.

APPENDIX A

NET CAPITAL EXPENDITURES FOR ROAD AND EQUIPMENT—ALL NEW ENGLAND RAILROADS
 JULY 1, 1914, TO DECEMBER 31, 1922
 (INCLUDING IMPROVEMENTS ON LEASED RAILWAY PROPERTY)

ACCOUNT	NEW YORK, NEW HAVEN & HARTFORD	CENTRAL NEW ENG.	TOTAL NEW HAVEN C. N. E.	BOSTON & MAINE	BOSTON & ALBANY	MAINE CENTRAL	BANGOR & AROOSTOOK	C. VERMONT (excluding Canadian Lines)	RUTLAND	ATLANTIC & ST. LAWRENCE	TOTAL
ROAD											
Engineering	\$1,074,060	\$31,223	\$1,105,283	\$561,127	\$162,070	\$37,191	\$6,565	\$4,133	\$670	\$373	\$1,877,412
Grading.....	6,600,436	229,817	6,830,253	2,002,063	435,738	431,357	238,804	19,885	92,945	19,249	10,070,294
Bridges, Trestles and Culverts.....	4,214,473	127,088	4,341,561	3,461,741	603,354	1,039,182	38,078	102,553	147,036	49,074	9,782,579
Track Materials and Labor, Track Laying and Surfacing.....	6,935,910	298,312	7,234,222	2,739,116	1,464,722	746,212	456,512	253,715	568,490	711,091	14,174,080
Station and Office Buildings.....	3,725,126	194,491	3,919,617	1,070,743	345,867	297,563	94,546	300,786	160,716	167,684	6,357,522
Shops and Engine Houses.....	2,367,053	304,808	2,671,861	2,678,498	136,862	262,956	154,426	73,550	512,576	93,651	6,584,380
Crossings and Signs.....	2,093,009	131,993	2,225,002	1,241,832	393,958	128,094	20,165	56,157	74,855	18,695	4,158,758
Telegraph and Telephone Lines.....	1,261,017	24,774	1,285,791	32,564	111,833	3,966	307	5,062	255	8,263	1,448,041
Signals and Interlockers.....	1,917,810	16,310	1,934,120	688,085	158,007	73,911	19,891	5,548	1,218	151,958	3,032,738
Power Plants and Transmission Lines....	1,829,956	26,272	1,856,228	556,886	79,195	23,506	<i>-2,444</i>	.....	4,683	384	2,518,438
Shop Machinery	1,001,964	65,790	1,067,754	273,911	90,809	135,952	80,699	133,414	73,436	37,538	1,893,513
All Other.....	2,014,752	<i>-47,934</i>	1,966,818	620,685	632,296	209,508	276,250	82,325	48,801	25,656	3,862,339
Total Road.....	\$35,035,566	\$1,402,944	\$36,438,510	\$15,927,251	\$4,614,711	\$3,389,398	\$1,383,799	\$1,037,128	\$1,685,681	\$1,283,616	\$65,760,094
EQUIPMENT											
Steam and Other Locomotives.....	\$8,239,825	\$724,671	\$8,964,496	\$3,106,485	\$1,725,776	\$1,681,057	\$544,396	\$250,313	\$271,113	\$5,372	\$16,549,008
Freight Train Cars.....	3,818,665	<i>-63,869</i>	3,754,796	5,665,745	675,984	1,931,400	622,235	116,100	<i>-21,434</i>	.....	12,744,826
Passenger Train Cars.....	8,323,154	14,431	8,337,585	1,358,908	1,455,257	302,246	27,830	16,464	114,254	.....	11,612,544
Other Equipment Expenditures.....	1,411,284	9,721	1,421,005	199,296	155,286	<i>-189,332</i>	120,003	79,225	21,400	95,945	1,902,823
Total Equipment.....	\$21,792,928	\$684,954	\$22,477,882	\$10,330,434	\$4,012,303	\$3,725,371	\$1,314,464	\$462,102	\$385,333	\$101,317	\$42,809,206
General Expenditures.....	1,475,337	19,724	1,495,061	156,468	10,845	17,958	19,073	1,740	8,222	3,400	1,712,767
Grand Total.....	\$58,303,831	\$2,107,622	\$60,411,453	\$26,414,153	\$8,637,859	\$7,132,727	\$2,717,336	\$1,500,970	\$2,079,236	\$1,388,333	\$110,282,067

- Italics indicate Credits

APPENDIX B 1

INTERCHANGE OF NEW ENGLAND RAILROADS WITH CONNECTIONS
CLASSIFIED BY NEW ENGLAND RAILROADS
(YEAR ENDING JUNE 30, 1922)

RAILROAD	CARS RECEIVED			CARS DELIVERED			CARS RECEIVED AND DELIVERED — GRAND TOTAL			
	Loaded	Empty	Total	Loaded	Empty	Total	Loaded	Percent of Total Loaded	Empty	Grand Total
New Haven	422,838	47,764	470,602	161,080	319,345	480,425	583,918	37.9	367,109	951,027
Boston & Maine	284,745	20,948	305,693	105,619	193,085	298,704	390,364	25.3	214,033	604,397
Boston & Albany	268,460	21,492	289,952	102,998	175,793	278,791	371,458	24.1	197,285	568,743
Maine Central	36,539	5,611	42,150	15,650	29,535	45,185	52,189	3.4	35,146	87,335
Bangor & Aroostook	4,698	1,574	6,272	2,455	3,222	5,677	7,153	0.5	4,796	11,949
Central Vermont	39,320	4,952	44,272	26,987	20,324	47,311	66,307	4.3	25,276	91,583
Rutland	40,791	9,273	50,064	28,558	24,593	53,151	69,349	4.5	33,866	103,215
Total	1,097,391	111,614	1,209,005	443,347	765,897	1,209,244	1,540,738	100.0	877,511	2,418,249

APPENDIX B2

INTERCHANGE OF NEW ENGLAND RAILROADS WITH CONNECTIONS

CLASSIFIED BY GATEWAYS

(YEAR ENDING JUNE 30, 1922)

GATEWAY	CARS RECEIVED			CARS DELIVERED			CARS RECEIVED AND DELIVERED — GRAND TOTAL			
	Loaded	Empty	Total	Loaded	Empty	Total	Loaded	Percent of Total Loaded	Empty	Total
WESTERN GATEWAYS										
(Trunk Line Connections)										
Harlem River	246,611	35,536	282,147	120,381	179,679	300,060	366,992	23.8	215,215	582,207
Maybrook	176,227	12,228	188,455	40,699	139,666	180,365	216,926	14.1	151,894	368,820
Albany	268,460	21,492	289,952	102,998	175,793	278,791	371,458	24.1	197,285	568,743
Mechanicville (and Rotterdam Jct.) . . .	247,425	16,826	264,251	89,167	164,272	253,439	336,592	21.8	181,098	517,690
Rutland	7,738	2,417	10,155	5,494	5,731	11,225	13,232	0.9	8,148	21,380
Total Western Gateways . .	946,461	88,499	1,034,960	358,739	665,141	1,023,880	1,305,200	84.7	753,640	2,058,840
NORTHERN GATEWAYS										
(Canadian Connections)										
Norwood	23,290	5,878	29,168	21,670	13,620	35,290	44,960	2.9	19,498	64,458
Swanton	49,611	6,035	55,646	28,560	26,187	54,747	78,171	5.1	32,222	110,393
Newport	36,792	4,017	40,809	16,273	28,192	44,465	53,065	3.5	32,209	85,274
Maine Central	12,889	4,631	17,520	11,567	12,003	23,570	24,456	1.6	16,634	41,090
Bangor & Aroostook	1,055	1,562	2,617	2,439	324	2,763	3,494	0.2	1,886	5,380
Total Northern Gateways . .	123,637	22,123	145,760	80,509	80,326	160,835	204,146	13.3	102,449	306,595
EASTERN GATEWAYS										
(Canadian Connections to Maritime Provinces)										
Bangor & Aroostook (Van Buren & Other Points)	3,643	12	3,655	16	2,898	2,914	3,659	0.2	2,910	6,569
Maine Central (Vanceboro & Other Points)	23,650	980	24,630	4,083	17,532	21,615	27,733	1.8	18,512	46,245
Total Eastern Gateways . . .	27,293	992	28,285	4,099	20,430	24,529	31,392	2.0	21,422	52,814
GRAND TOTAL	1,097,391	111,614	1,209,005	443,347	765,897	1,209,244	1,540,738	100.0	877,511	2,418,249

APPENDIX B 3

INTERCHANGE OF NEW ENGLAND RAILROADS WITH CONNECTIONS
CLASSIFIED BY CONNECTING LINES
(YEAR ENDING JUNE 30, 1922)

CONNECTING LINES	CARS RECEIVED FROM CONNECTING LINES			CARS DELIVERED TO CONNECTING LINES			CARS RECEIVED AND DELIVERED — GRAND TOTAL			
	Loaded	Empty	Total	Loaded	Empty	Total	Loaded	Percent of Total Loaded	Empty	Total
New York Central	375,470	33,228	408,698	155,113	254,495	409,608	530,583	34.4	287,723	818,306
Delaware & Hudson	188,232	14,578	202,810	65,502	129,149	194,651	253,734	16.5	143,727	397,461
Pennsylvania	149,977	13,830	163,807	64,965	107,499	172,464	214,942	13.9	121,329	336,271
Lehigh & Hudson River	77,108	3,684	80,792	24,002	51,038	75,040	101,110	6.5	54,722	155,832
Grand Trunk	57,120	9,520	66,640	36,551	37,691	74,242	93,671	6.1	47,211	140,882
Canadian Pacific	51,662	6,367	58,029	23,430	36,946	60,376	75,092	4.9	43,313	118,405
Erie	48,422	5,610	54,032	11,645	39,395	51,040	60,067	3.9	45,005	105,072
Lehigh Valley	50,516	3,448	53,964	12,591	37,772	50,363	63,107	4.1	41,220	104,327
Central R.R. of New Jersey	33,390	6,790	40,180	21,688	20,805	42,493	55,078	3.6	27,595	82,673
Lehigh & New England	29,277	499	29,776	310	30,186	30,496	29,587	1.9	30,685	60,272
Long Island	4,165	7,771	11,936	10,550	1,335	11,885	14,715	1.0	9,106	23,821
New York, Ontario and Western	12,708	1,089	13,797	2,345	10,421	12,766	15,053	1.0	11,510	26,563
Quebec Central	3,447	176	3,623	605	2,973	3,578	4,052	0.2	3,149	7,201
New York Terminal Companies	6,986	2,299	9,285	9,451	418	9,869	16,437	1.1	2,717	19,154
Quebec, Montreal & Southern	4,060	187	4,247	479	2,420	2,899	4,539	0.3	2,607	7,146
Canadian National	3,817	34	3,851	105	3,206	3,311	3,922	0.2	3,240	7,162
Albany Southern (Electric)	746	1,242	1,988	1,907	102	2,009	2,653	0.2	1,344	3,997
Norwood & St. Lawrence	288	1,262	1,550	2,108	46	2,154	2,396	0.2	1,308	3,704
Total	1,097,391	111,614	1,209,005	443,347	765,897	1,209,244	1,540,738	100.0	877,511	2,418,249
Percent of Grand Total . . . . .	.....	.....	.....	.....	.....	.....	63.7%	.....	36.3%	100.0%

APPENDIX C

DESCRIPTION OF FREIGHT TRAFFIC OF NEW ENGLAND
RAILROADS

The principal commodities handled by the New England roads are shown in the following statement:

(Year ending December 31, 1922)

COMMODITY	TONS HANDLED	PER CENT OF TOTAL
Anthracite and Bituminous Coal	18,078,372	22.93
Miscellaneous Manufactures	10,954,564	13.89
Less than Carload Freight	6,617,047	8.39
Grain, Flour and other Mill Products, Hay, Straw and Alfalfa	6,574,616	8.34
Lumber and other Products of Forests	6,453,743	8.18
Cement, Brick, Lime and Plaster	3,868,165	4.91
Refined Petroleum and its Products	3,273,742	4.15
Clay, Gravel, Sand, Stone and other Products of Mines, except Coal and Coke	3,268,365	4.15
Potatoes	2,596,603	3.29
Paper, Printed Matter and Books	2,491,740	3.16
Pulp Wood	1,885,642	2.39
Bar and Sheet Iron, Structural Iron, Iron Pipe, other Metals, Pig, Bar and Sheet	1,751,374	2.22
Fruit and Vegetables and other Products of Agriculture Fresh Meats, other Packing House Products, Canned Goods	1,387,058	1.76
Ice	1,277,543	1.62
Iron, Pig and Bloom, Castings, Machinery and Boilers Chemicals and Explosives	1,241,770	1.58
Unclassified Tonnage	1,168,434	1.49
Cotton	830,205	1.05
Other Products of Animals	825,507	1.05
Sugar, Syrup, Glucose and Molasses	669,995	.85
Coke	524,304	.66
Textiles	514,896	.65
Hides and Leather	500,927	.64
Automobiles and Auto Trucks	465,300	.59
Live Stock	416,113	.53
Wool	394,748	.50
Rails and Fastenings	389,842	.50
	302,935	.38
	122,080	.15
Total	78,845,630	100.00

COAL TRAFFIC

Coal is the largest single item of traffic on the New England roads. In 1922 the movement of anthracite coal was below normal because of the coal strike which lasted from April 1st to September 15th. The tonnage of anthracite and bituminous coal and the percentage of each to total traffic last year as compared with 1921 on the three principal roads were as follows:

TONS OF COAL HANDLED				
ANTHRACITE	1921	Per cent of Total Traffic	1922	Per cent of Total Traffic
New Haven	3,433,352	15.6	2,026,780	8.4
Boston & Maine	2,791,699	13.9	1,728,913	8.1
Boston & Albany	1,492,975	17.1	749,700	8.0
BITUMINOUS				
New Haven	3,375,663	15.3	3,926,888	16.2
Boston & Maine	2,432,132	12.1	2,449,931	11.5
Boston & Albany	1,772,804	20.3	1,788,110	19.0

It will be noted that while there was a large decrease in the movement of anthracite coal, there was an increase in the movement of bituminous coal. This was due chiefly to the fact that while the strike in the anthracite coal regions was complete, and during the period of the strike little anthracite coal moved into New England, in the case of the bituminous coal there was not only a large movement of coal into New England from non-union mines but also a large quantity of foreign coal was received at the New England ports, and the movement of this coal from tide-water to interior points offset to a certain extent the loss of the all-rail movement from the union fields.

PETROLEUM AND ITS PRODUCTS

During recent years the tonnage of petroleum and its products has become important because of the substitution on a large scale by New England industries of fuel oil for coal. The growth of this traffic since 1912 on the New Haven, Boston & Maine, Boston & Albany and Maine Central which carry most of it, is as follows:

PETROLEUM AND ITS PRODUCTS—TONS HANDLED IN
1912 AND 1922

	1912	Per cent of Total Traffic	1922	Per cent of Total Traffic
New Haven*	397,069	1.61	1,631,115	6.73
Boston & Maine	230,755	.97	870,352	4.09
Boston & Albany	138,465	1.59	326,800	3.47
Maine Central	40,267	.59	238,748	3.25

*Does not include Central New England.

A large tonnage of lumber and other forest products, pulpwood, paper and potatoes is originated on the Bangor & Aroostook and Maine Central, but as the traffic carried by each road will be given later in some detail we will not attempt to describe the general characteristics of New England freight traffic further than to comment on its high percentage of less than carload traffic.

LESS THAN CARLOAD TRAFFIC

A distinguishing feature of freight traffic on the New England lines is the large percentage of less than carload freight to total. In 1922 a total of 23,935,273 tons of freight originated on the New England railroads of which 3,731,012 tons, or 15.59 per cent was less than carload traffic. During the same period the total tonnage originating on all the railroads of the United States was 1,023,165,630 tons, of which 43,168,067 tons, or only 4.22 per cent was less than carload freight. While the New England railroads originated only 2.34 per cent of the total tonnage of the United States they originated 8.64 per cent of the less than carload tonnage.

The following table shows the relation between less than carload traffic and total traffic originated on the different New England railroads (year ending December 31, 1922):

ROAD	TONS ORIGINATED		Per cent less than carload to total orig- inated
	Less than Carload	Total	
New Haven	1,641,514	8,267,432	19.85
Boston & Maine	1,201,161	6,620,179	18.14
Boston & Albany	375,631	2,372,980	15.83
Maine Central	313,472	3,506,807	8.94
Central Vermont	79,411	715,292	11.10
Rutland	66,863	422,064	15.84
Bangor & Aroostook	19,466	1,580,720	1.23
Atlantic & St. Lawrence	33,494	449,799	7.45
Total New England	3,731,012	23,935,273	15.59
Total United States	43,168,067	1,023,165,630	4.22

These statistics refer only to tonnage originated, not total tonnage carried.

We give in the following table the tonnage of less than carload freight carried and the percentage of this traffic to total tonnage carried in 1922, as compared with 1912, for the New Haven and Boston & Maine, the only two roads for which the comparison is available. The figures for the New

Haven exclude the Central New England to avoid duplication of tonnage interchanged between these roads.

TOTAL LESS THAN CARLOAD FREIGHT CARRIED

	1912 TONNAGE	PER CENT OF TOTAL	1922 TONNAGE	PER CENT OF TOTAL
New Haven *	3,934,985	15.95	2,409,673	9.95
Boston & Maine	1,781,547	7.51	1,950,547	9.16

* Does not include Central New England.

This statement shows an increase of 169,000 tons on the Boston & Maine, and a loss of 1,525,312 tons on the New Haven. This falling off on the New Haven undoubtedly reflects the increase in motor truck transportation which has been very large since 1917, especially in Southern New England.

Tonnage carried by principal commodities in 1912 and 1922 for the individual New England roads is given in the following tables. The classification of commodities under which the tonnage was reported in 1922 has been condensed to correspond as closely as possible with the classification used in 1912.

	PAGE
New Haven	275
Boston & Maine	276
Boston & Albany	277
Maine Central	278
Central Vermont	279
Bangor & Aroostook	280
Rutland	281

NEW HAVEN RAILROAD*
TONS OF REVENUE FREIGHT CARRIED BY COMMODITIES
1912 AND 1922

	1912 TONS	PER CENT OF TOTAL	1922 TONS	PER CENT OF TOTAL
Products of Agriculture				
1. Grain	691,288	2.80	370,992	1.53
2. Flour	256,477	1.04	327,675	1.35
3. Other Mill Products	236,297	.96	581,149	2.40
4. Hay	277,325	1.12	209,545	.87
5. Tobacco	16,324	.06	22,152	.09
6. Cotton	223,867	.91	275,068	1.14
7. Fruit and Vegetables	352,321	1.43	819,516	3.38
8. Other Products of Agriculture	42,136	.17	149,829	.62
Products of Animals				
9. Live Stock	46,210	.19	45,232	.19
10. Dressed Meats	148,100	.60	166,387	.69
11. Other Packing House Products	18,810	.08	18,523	.08
12. Poultry, Game and Fish	40,957	.17	10,719	.04
13. Wool	124,082	.50	112,495	.47
14. Hides and Leather	123,983	.50	127,008	.53
15. Other Products of Animals	203,234	.82	191,994	.79
Products of Mines				
16. Anthracite Coal	2,366,613	9.59	2,026,780	8.37
17. Bituminous Coal	4,133,374	16.75	3,926,888	16.22
18. Coke	125,234	.51	210,337	.87
19. Ores	68,984	.28	9,279	.04
20. Stone, Sand, and other like articles	1,053,607	4.27	782,780	3.23
21. Other Products of Mines	73,838	.30	212,354	.88
Products of Forests				
22. Lumber	1,043,825	4.23	1,303,786	5.38
23. Other Products of Forests	118,738	.48	164,459	.68
Manufactures				
24. Petroleum and Other Oils	397,069	1.61	1,631,115	6.73
25. Sugar	48,153	.19	153,865	.63
26. Naval Stores	460	.00	976	A
27. Iron, Pig and Bloom	273,183	1.11	330,647	1.36
28. Iron and Steel Rails	125,495	.51	34,222	.14
29. Other Castings and Machinery	246,619	1.00	245,935	1.02
30. Bar and Sheet Metal	533,340	2.16	931,259	3.84
31. Cement, Brick and Lime	985,180	3.99	1,356,757	5.60
32. Agricultural Implements	1,660	.01	21,163	.08
33. Wagons, Carriages, etc.	15,572	.06	86,602	.35
34. Wines, Liquors and Beers	154,368	.63	42,838	.18
35. Household Goods and Furniture	31,986	.13	26,077	.11
36. Other Manufactures	1,935,306	7.84	1,582,085	6.53
37. Other Carload Commodities	4,206,469	17.05	3,305,375	13.64
38. Less than Carload Freight	3,934,985	15.95	2,409,673	9.95
<hr/>				
Total Tons Carried	24,675,469	100.00	24,223,536	100.00
<hr/>				
Revenue Ton Miles.	2,343,040,000	..	2,552,128,000	..
Average Haul — Miles	94.95	..	107.68	..

* Does not include Central New England.
A. Less than .005 per cent of total.

BOSTON & MAINE RAILROAD
TONS OF REVENUE FREIGHT CARRIED BY COMMODITIES
1912 AND 1922

	1912 TONS	PER CENT OF TOTAL	1922 TONS	PER CENT OF TOTAL
Products of Agriculture				
1. Grain	1,178,677	4.97	724,873	3.40
2. Flour	437,302	1.85	320,320	1.50
3. Other Mill Products	368,617	1.56	481,117	2.26
4. Hay	544,497	2.30	163,162	.77
5. Tobacco	30,088	.13	7,565	.04
6. Cotton and Products	231,798	.98	225,393	1.06
7. Vegetables and Fruit	831,195	3.51	1,062,342	4.96
8. Other Products of Agriculture	97,293	.41	48,895	.23
Products of Animals				
9. Live Stock	134,759	.57	73,695	.35
10. Dressed Meats	257,918	1.09	105,293	.49
11. Other Packing House Products	173,656	.73	90,992	.43
12. Poultry, Game and Fish	81,468	.34	10,517	.05
13. Wool	123,829	.52	84,979	.40
14. Hides and Leather	207,469	.88	157,427	.74
15. Other Products of Animals	25,828	.11	121,177	.57
Products of Mines				
16. Anthracite Coal	1,736,404	7.33	1,728,913	8.12
17. Bituminous Coal	2,885,636	12.18	2,449,931	11.50
18. Coke	195,492	.83	123,437	.58
19. Ores	88,849	.37	8,051	.04
20. Stone, Sand and Other Like Articles	1,310,761	5.53	787,407	3.70
21. Other Products of Mines	41,374	.17	208,529	.98
Products of Forests				
22. Lumber	2,296,813	9.69	2,068,140	9.71
23. Other Products of Forests	698,403	2.95	612,235	2.87
Manufactures				
24. Petroleum and Other Oils	230,755	.97	870,352	4.09
25. Sugar	203,607	.86	112,247	.53
26. Naval Stores	47,539	.20	888	A
27. Iron, Pig and Bloom	156,166	.66	82,152	.38
28. Iron and Steel Rails	96,519	.41	38,844	.18
29. Other Castings and Machinery	400,092	1.69	173,158	.81
30. Bar and Sheet Metal	94,593	.40	318,714	1.50
31. Cement	177,093	.75	390,925	1.84
32. Brick	362,435	1.53	292,373	1.37
33. Lime	136,479	.58	153,545	.72
34. Agricultural Implements	49,803	.21	48,640	.23
35. Autos, Trucks, Wagons, Car- riages, Tools, etc.	41,615	.17	93,796	.44
36. Wines, Liquors and Beers	219,075	.92	16,017	.07
37. Household Goods and Furniture	132,588	.56	37,213	.17
38. Other Carload Commodities	5,586,955	23.58	5,051,915	23.73
39. Less than Carload Freight	1,781,547	7.51	1,950,547	9.16
Total Tons Carried	23,694,987	100.00	21,295,716	100.00
Revenue Ton Miles	2,460,991,000	..	2,689,915,000	..
Average Haul — Miles	103.86	..	126.31	..

A. Less than .005 per cent of total.

BOSTON & ALBANY RAILROAD

TONS OF REVENUE FREIGHT CARRIED BY COMMODITIES

1912 AND 1922

	1912 TONS	PER CENT OF TOTAL	1922 TONS	PER CENT OF TOTAL
Products of Agriculture				
1. Grain	478,327	5.51	310,963	3.31
2. Flour	168,503	1.94	191,690	2.04
3. Other Mill Products	152,955	1.76	232,874	2.48
4. Hay	146,830	1.69	119,650	1.27
5. Tobacco	4,053	.05	691	.01
6. Cotton	88,564	1.02	53,051	.56
7. Fruit and Vegetables	150,023	1.73	193,142	2.05
8. Other Agricultural Products . .	73,724	.85	65,902	.70
Products of Animals				
9. Live Stock	280,123	3.22	219,325	2.33
10. Dressed Meats	59,376	.68	169,143	1.80
11. Other Packing House Products .	99,919	1.15	58,717	.62
12. Poultry, Game and Fish	17,795	.20	16,931	.18
13. Wool	74,326	.85	62,869	.67
14. Hides and Leather	102,632	1.18	59,456	.63
15. Other Products of Animals . .	90,923	1.05	84,041	.89
Products of Mines				
16. Anthracite Coal	797,716	9.18	749,700	7.97
17. Bituminous Coal	1,332,595	15.34	1,788,110	19.01
18. Coke	81,461	.94	132,689	1.41
19. Ores.	21,553	.25	4,628	.05
20. Stone, Sand and Other Like Articles	510,647	5.88	273,443	2.91
21. Other Products of Mines. . . .	52,030	.60	71,872	.76
Products of Forests				
22. Lumber	263,236	3.03	241,312	2.57
23. Other Products of Forests . . .	128,194	1.48	47,065	.50
Manufactures				
24. Petroleum and Other Oils . . .	138,465	1.59	326,800	3.47
25. Sugar	42,779	.49	55,834	.59
26. Naval Stores	29,796	.34	136	A
27. Iron, Pig and Bloom	142,447	1.64	57,242	.61
28. Iron and Steel Rails	7,304	.08	16,636	.18
29. Other Castings and Machinery .	185,180	2.13	115,808	1.23
30. Bar and Sheet Metal	254,609	2.93	287,744	3.06
31. Cement, Brick and Lime	583,543	6.72	727,321	7.73
32. Agricultural Implements	2,303	.03	4,459	.05
33. Wines, Liquors and Beers	52,622	.60	6,274	.07
34. Household Goods and Furniture.	26,616	.31	12,248	.13
35. Other Manufactures	1,658,134	19.08	1,767,464	18.79
36. All Other Commodities	389,273	4.48	881,150	9.37
Total Tons Carried	8,688,576	100.00	9,406,380	100.00
Revenue Ton Miles	972,359,000	..	1,089,660,000	..
Average Haul — Miles	111.91	..	115.84	..

A. Less than .005 per cent of total.

MAINE CENTRAL RAILROAD

TONS OF REVENUE FREIGHT CARRIED BY COMMODITIES

1912 AND 1922

	1912 TONS	PER CENT OF TOTAL	1922 TONS	PER CENT OF TOTAL
Products of Agriculture				
1. Grain	288,091	4.24	228,721	3.11
2. Flour	75,008	1.11	65,116	.88
3. Other Mill Products	88,182	1.30	178,388	2.43
4. Hay	171,213	2.52	31,510	.43
5. Cotton	22,112	.33	32,023	.44
6. Potatoes	565,156	8.33	787,283	10.71
7. Fruit and Vegetables	89,706	1.32	27,791	.38
8. Other Products of Agriculture	22,424	.33	6,046	.08
Products of Animals				
9. Live Stock	20,625	.31	15,764	.21
10. Dressed Meats	11,993	.18	12,684	.17
11. Other Packing House Products	19,968	.29	4,753	.06
12. Poultry, Game and Fish	13,630	.20	309	A
13. Wool	5,496	.08	4,921	.07
14. Hides and Leather	20,992	.31	9,824	.13
15. Other Products of Animals	30,172	.44	9,952	.14
Products of Mines				
16. Anthracite Coal	124,510	1.83	137,920	1.87
17. Bituminous Coal	612,596	9.02	711,656	9.68
18. Coke	6,998	.10	10,116	.14
19. Ores	1,435	.01	416	.01
20. Stone, Sand and Other Like Articles	138,857	2.04	135,530	1.84
21. Other Products of Mines	78,615	1.16	93,649	1.27
Products of Forests				
22. Lumber	1,041,609	15.33	934,446	12.71
23. Railroad Ties	62,945	.93	10,254	.14
24. Pulp Wood	737,503	10.86	906,214	12.32
25. Other Products of Forests	392,322	5.77	128,425	1.75
Manufactures				
26. Petroleum and other Oils	40,267	.59	238,748	3.25
27. Sugar	15,499	.23	16,356	.22
28. Naval Stores	1,526	.02	440	.01
29. Iron, Pig and Bloom	13,625	.20	3,386	.05
30. Rails, Iron and Steel	28,160	.41	11,905	.16
31. Other Castings and Machinery	28,899	.42	20,699	.28
32. Metal, Bar and Sheet	5,120	.08	13,749	.19
33. Cement	26,074	.38	58,342	.79
34. Agricultural Implements	3,359	.05	4,820	.07
35. Autos, Wagons, Carriages and other Vehicles	3,435	.05	13,281	.18
36. Household Goods and Furniture	10,799	.16	2,938	.04
37. Brick	25,147	.37	22,448	.31
38. Lime	107,863	1.59	133,110	1.81
39. Paper	477,447	7.03	654,596	8.90
40. Acids	7,346	.11	58,582	.80
41. Ice	31,281	.46	35,980	.49
42. All Other Commodities	1,325,514	19.51	1,579,607	21.48
Total Tons Carried	6,793,519	100.00	7,352,698	100.00
Revenue Ton Miles	612,514,000	...	857,667,000	...
Average Haul—Miles	90.16	...	116.65	...

A. Less than .005 per cent of total.

CENTRAL VERMONT RAILWAY

TONS OF REVENUE FREIGHT CARRIED BY COMMODITIES

1912 AND 1922

	1912 TONS	PER CENT OF TOTAL	1922 TONS	PER CENT OF TOTAL
Products of Agriculture				
1. Grain	355,662	8.82	348,900	9.03
2. Flour	84,546	2.10	98,403	2.55
3. Other Mill Products	139,835	3.47	199,519	5.16
4. Hay	253,528	6.28	37,833	.98
5. Other Products of Agriculture	85,265	2.11	160,850	4.16
Products of Animals				
6. Live Stock	28,543	.71	17,702	.46
7. Packing House Products	45,251	1.12	128,659	3.33
8. Hides and Leather	18,245	.45	27,968	.72
9. Other Products of Animals	53,364	1.32	54,500	1.41
Products of Mines				
10. Anthracite Coal	305,237	7.57	196,201	5.08
11. Bituminous Coal	553,020	13.71	312,276	8.08
12. Granite, Clay, Gravel and Sand	120,313	2.98	205,809	5.32
13. Other Products of Mines	162,557	4.03	31,388	.81
Products of Forests				
14. Lumber	350,418	8.69	405,382	10.49
15. Pulp Wood	26,723	.66	67,455	1.74
16. Other Products of Forests	115,599	2.87	77,409	2.00
Manufactures				
17. Petroleum and Oils	24,500	.61	113,583	2.94
18. Brick, Cement and Lime	91,174	2.26	91,030	2.35
19. All Other Commodities	1,219,859	30.24	1,290,822	33.39
Total Tons Carried	4,033,639	100.00	3,865,689	100.00
Revenue Ton Miles	309,505,000	..	369,128,000	..
Average Haul—Miles.	76.73	..	95.49	..

BANGOR & AROOSTOOK RAILROAD
TONS OF REVENUE FREIGHT CARRIED BY COMMODITIES
1912 AND 1922

	1912 TONS	PER CENT OF TOTAL	1922 TONS	PER CENT OF TOTAL
Products of Agriculture				
1. Grain	14,612	.81	19,952	.92
2. Flour	6,625	.37	6,418	.30
3. Other Mill Products	11,528	.64	10,697	.50
4. Hay	42,436	2.36	12,574	.58
5. Fruits and Vegetables	3,500	.20	1,878	.09
6. Potatoes	388,323	21.64	532,896	24.70
7. Other Products of Agriculture	560	.03	448	.02
Products of Animals				
8. Live Stock	1,963	.11	1,722	.08
9. Dressed Meats	121	.01	273	.01
10. Other Packing House Products	2,187	.12	1,220	.06
11. Wool	22	..	474	.02
12. Hides and Leather	6,116	.34	1,182	.05
13. Other Products of Animals	1,287	.07	64	A
Products of Mines				
14. Anthracite Coal	34,662	1.93	4,771	.22
15. Bituminous Coal	137,072	7.64	267,897	12.42
16. Coke	234	.01	193	.01
17. Stone, Sand and Other Like Articles	16,466	.92	19,352	.90
18. Other Products of Mines	33,810	1.89	2,587	.12
Products of Forests				
19. Lumber	359,058	20.01	262,697	12.18
20. Other Products of Forests	362,141	20.18	396,280	18.37
Manufactures				
21. Fertilizer	79,707	4.44	105,196	4.88
22. Starch	2,232	.12	4,681	.22
23. Petroleum and Other Oils	3,400	.19	19,485	.90
24. Sugar	2,101	.12	2,592	.12
25. Naval Stores	281	.02	58	A
26. Iron and Steel Rails	10	..	332	.02
27. Other Castings and Machinery	10,314	.57	5,539	.26
28. Cement, Brick and Lime	18,577	1.04	26,075	1.21
29. Agricultural Implements	1,426	.08	1,037	.05
30. Wagons, Carriages, Tools, etc.	828	.05	880	.04
31. Wines, Liquors and Beers	105	.01	89	A
32. Household Goods and Furniture.	384	.02	229	.01
33. Paper	151,659	8.45	248,142	11.50
34. All Other Commodities	100,666	5.61	119,109	9.24
<hr/>				
Total Tons Carried	1,794,413	100.00	2,157,019	100.00
Revenue Ton Miles	225,214,000	..	267,482,000	..
Average Haul — Miles	125.51	..	124.01	..

A. Less than .005 per cent of total.

RUTLAND RAILROAD

TONS OF REVENUE FREIGHT CARRIED BY COMMODITIES
1912 AND 1922

	1912*	PER CENT	1922	PER CENT
	TONS	OF TOTAL	TONS	OF TOTAL
Products of Agriculture				
1. Grain	99,012	4.15	80,238	4.39
2. Flour and Meal	40,538	1.70	24,344	1.33
3. Other Mill Products	83,534	3.50	74,709	4.09
4. Hay, Straw and Alfalfa	83,074	3.49	11,939	.65
5. Tobacco	591	.02	80	A
6. Cotton, Cotton Seed & Products except Oil	3,735	.16	3,883	.21
7. Fruit and Vegetables	29,133	1.22	22,371	1.22
8. Other Products of Agriculture	6,655	.28	4,502	.25
Products of Animals				
9. Live Stock	13,913	.58	9,956	.55
10. Dressed Meats	2,705	.11	1,175	.06
11. Other Packing House Products	1,488	.06	1,931	.11
12. Poultry, Game and Fish	820	.04	11	A
13. Wool	2,050	.09	2,964	.16
14. Hides and Leather	3,777	.16	4,348	.24
15. Other Products of Animals	21,983	.92	4,528	.25
Products of Mines				
16. Anthracite Coal	243,035	10.20	230,352	12.60
17. Bituminous Coal	374,773	15.72	296,063	16.19
18. Coke	8,773	.37	6,132	.34
19. Ores	2,628	.11	271	.01
20. Stone, Sand and Other Like Articles	178,876	7.50	184,331	10.08
21. Other Products of Mines	18,704	.78	11,919	.65
Products of Forests				
22. Lumber	123,670	5.19	93,795	5.13
23. Other Products of Forests	439,286	18.43	108,235	5.92
Manufactures				
24. Petroleum and Other Oils	10,815	.45	34,548	1.89
25. Sugar, Syrup, Glucose and Molasses	5,796	.24	19,577	1.07
26. Naval Stores	243	.01	5	A
27. Iron, Pig and Bloom	6,891	.29	3,191	.17
28. Iron and Steel Rails	10,778	.45	6,734	.37
29. Other Castings and Machinery	16,655	.70	10,706	.59
30. Bar and Sheet Metal	6,423	.27	9,927	.54
31. Cement, Brick and Lime	48,442	2.03	48,207	2.64
32. Agricultural Implements	6,416	.27	5,057	.28
33. Automobiles, Trucks, Wagons, Carriages, Tools, etc.	2,803	.12	20,939	1.15
34. Wines, Liquors and Beers	3,872	.16	562	.03
35. Household Goods and Furniture	6,545	.28	4,354	.24
36. All Other Commodities	475,482	19.95	486,335	26.60
Total Tons Carried	2,383,964	100.00	1,823,219	100.00
Revenue Ton Miles	261,143,000	..	201,641,000	..
Average Haul—Miles	109.54	..	110.29	..

* Year ending Dec. 31, 1912.

A. Less than .005 per cent of total.

APPENDIX D

COMPARATIVE RATES TO PACIFIC COAST
(SAN FRANCISCO)
(Rate per Hundred Pounds)

COMMODITY		By WATER from Boston	By RAIL FROM				
			Boston	Pittsburgh	Detroit	Chicago	
Cotton Piece Goods.....	\$0.60	{	CL	\$1.87½	\$1.73	\$1.65	\$1.58
			LCL	3.40½	3.18	3.18	2.95½
Dry Goods.....	1.75	{	CL	1.87½	1.73	1.65	1.58
			LCL	3.40½	3.18	3.18	2.95½
Carpets and Rugs.....	.75	{	CL	2.40	2.25	2.18	2.10
			LCL	3.75	3.45	3.45	3.21
Paper.....	.50		CL	1.65	1.40	1.33	1.25
Hardware and Tools.....	.70		LCL	3.40½	3.18	3.18	2.95½
Pianos.....	.75	{	CL	3.53	2.75	2.63	2.50
			LCL	5.55	5.40	5.25	5.10
Boots and Shoes.....	1.50	{	CL	4.80	4.65	3.76	3.69
			LCL	5.16	4.74	4.74	4.41
Automobile Tires.....	.80	{	CL	3.44½	2.75*	2.63	2.50
			LCL	5.55	5.18	5.18	4.82

CL Carload shipments.

LCL Less than carload shipments.

* Pittsburgh rate group includes Akron, Ohio.

APPENDIX E

ARRIVALS OF FOREIGN AND DOMESTIC VESSELS AT PORT OF
BOSTON APRIL 1-15, 1923

<i>Date</i>		<i>Class</i>	<i>Name</i>	<i>Nationality</i>	<i>From</i>	<i>Nature of Cargo</i>
April 1	Coastwise	Steamer	Glen White	American	Norfolk	Coal
1	"	"	Lake Strymon. . .	"	Jacksonville	General
1	"	"	Wilton	"	New York	General
1	"	"	Lewis K. Thurlow .	"	Baltimore	Coal
1	"	"	City of Gloucester .	"	Gloucester	General
2	Foreign		San Benito	British	Port Limon	Fruit & General
2	"		Prince George . .	"	Yarmouth, N. S.	General
2	"		Thode Fagerlund .	Norwegian	Buenos Aires	Wool & General
2	Coastwise	"	Seaconnet	American	Norfolk	Coal
2	"	"	Quincy	"	"	Coal
2	"	"	Gov. Dingley . . .	"	Portland, Me.	General
2	"	Tug	Norfolk	"	Norfolk (towing)	
2	"	Barge	Northern No. 31 .	"	Norfolk	Coal
2	"	Tug	D. F. McAllister .	"	Elizabethport, N. J. . . .	
2	"	Barge	Easton	"	" "	Coal
2	"	"	Coaldale	"	" "	Coal
2	"	"	Summit Hill . . .	"	" "	Coal
2	"	Tug	Tamaqua	"	Philadelphia	
2	"	Barge	Cocalico	"	"	Coal
2	"	"	Ontelaunee	"	"	Coal (for Gloucester)
2	"	"	Cohansey	"	"	Coal (" ")
2	"	Steamer	Yorba Linda . . .	"	San Pedro, Calif.	Oil
2	"	"	Cretan	"	Philadelphia	General
2	"	"	Nevisian	British	" (in transit to Liverpool)	
2	"	"	Penobscot	American	Norfolk	Coal
2	"	Tug	Nottingham . . .	"	Jersey City	
2	"	Barge	L & W No. 6 . . .	"	" "	Coal
2	"	"	L & W No. 4 . . .	"	" "	Coal (for Gloucester)
2	"	"	Wilkesbarre . . .	"	" "	Coal
2	"	Steamer	Norfolk	"	Norfolk	Coal
2	"	Tug	Paoli	"	Vineyard Haven	
2	"	Barge	Canisteo	"	New York	Coal
2	"	"	Haverford	"	" "	Coal
2	"	"	Strafford	"	" "	Coal (for Lynn)
2	"	Steamer	Grecian	"	Baltimore	General
2	"	"	City of Columbus .	"	Savannah	General
2	"	Tug	Resolute	"	Norfolk (towing)	
2	"	Barge	Potomac	"	"	Coal
2	"	"	Nanticoke	"	"	Coal
2	"	Tug	Chas. P. Greenough	"	" (towing)	
2	"	Barge	Hattie	"	"	Coal (for Beverly)
2	"	"	Rockland	"	Philadelphia	Coal
2	"	"	Northern No. 11 .	"	"	Coal
3	Foreign		Edge Hill	American	Rotterdam	General
3	"		Connehatta	"	Manchester	General
3	"		Hortensius	British	Buenos Aires	Wool & General
3	"		Helcsius	"	" "	General (hides & skins)
3	"		Nanerie	"	Caleutta	General
3	"		Mayari	"	Bancs, Cuba	Sugar
3	Coastwise	Steamer	City of Gloucester .	American	Gloucester.	General

ARRIVALS OF FOREIGN AND DOMESTIC VESSELS (Continued)

<i>Date</i>		<i>Class</i>	<i>Name</i>	<i>Nationality</i>	<i>From</i>	<i>Nature of Cargo</i>
April 3	Coastwise	Steamer	Everett	American	Norfolk	Coal
3	"	"	Freeman	"	"	Coal
3	"	"	Artigas	"	Pacific Ports	General
3	"	Tug	Loraine D.	"	Burlington, N. J. (towing).	
3	"	Barge	Northern No. 2	"	"	Sand
3	"	Tug	Mars.	"	Philadelphia (towing)	
3	"	Barge	West Moreland	"	"	Coal
3	"	Tug	Perth Amboy	"	Perth Amboy (towing)	
3	"	Barge	702	"	" "	Coal
3	"	"	706	"	" "	Coal
3	"	"	767	"	" "	Coal (for Rockland, Me.)
3	"	Tug	Suamico	"	New York (towing)	
3	"	Barge	Sagamore	"	Edgewater, N. J.	Coal
3	"	"	Esther Hughes	"	Port Reading, N. J.	Coal
3	"	Schooner	Grand Turk	"	Jacksonville	Lumber
3	"	"	Mabel A. Frye	"	"	Lumber
3	"	Steamer	Newton	"	Norfolk	Coal
3	"	"	Delaware	"	New York	General
3	"	"	Deepwater	"	Norfolk	Coal
4	Foreign		City of Dunkirk	British	Shanghai, etc.	General & Rubber
4	"		West Cohas	American	Liverpool	General
4	"		Deuel	"	Hamburg	General
4	"		Agwimars	"	Port Lobos	Oil
4	"		West Helix	"	Rotterdam	General
4	"		Boswell	British	Santa Fe	Wool & Hides
4	Coastwise	"	City of Gloucester	American	Gloucester.	General
4	"	"	Calvin Austin	"	New York	General
4	"	"	Evelyn	"	Porto Rico	Sugar
4	"	"	Gov. Dingley	"	Portland	General
4	"	Tug	Savage	"	Philadelphia (towing)	
4	"	Barge	No. 19	"	"	Coal
4	"	"	No. 20	"	"	Coal
4	"	"	No. 25	"	"	Coal
4	"	Steamer	Cornish	"	New York	General
4	"	"	Quantico	"	Philadelphia	General
4	"	Tug	Col. J. F. Gaynor	"	New York (towing)	
4	"	Barge	Tamaqua	"	" "	Coal
4	"	"	Rahn	"	" "	Coal
4	"	"	Nesquehoning	"	" "	Coal
5	Foreign		Prince George	British	Yarmouth	General
5	"		Elisha Walker	American	Tampico	Oil
5	"		Commodore Rollins	Norwegian	Santa Marta.	Bananas
5	"		Gardenia	British	Port Talbot	Coal
5	Coastwise	Steamer	City of Gloucester	American	Gloucester.	General
5	"	"	Belfast	"	New York	General
5	"	"	Lewis Luckenbach	"	Pacific Ports	General
5	"	"	Merrimack	"	Norfolk	General
5	"	Tug	Juno	"	Sandwich (towing)	
5	"	Barge	Hughes Brothers	"	Guttenberg, N. J.	Coal
6	Foreign		Canadian Challenger	British	Australian Ports, via New York	Wool & Hides
6	"		W. L. Steed.	American	Tampico	Oil
6	"		Winifredian	British	Liverpool	General
6	"		Montana	American	Vancouver, B. C.	Lumber
6	"		City of Cambridge	British	Calcutta	General

ARRIVALS OF FOREIGN AND DOMESTIC VESSELS (Continued)

<i>Date</i>		<i>Class</i>	<i>Name</i>	<i>Nationality</i>	<i>From</i>	<i>Nature of Cargo</i>
April 6	Coastwise	Steamer	City of Gloucester .	American	Gloucester	General
6	"	"	Munmotor	"	Norfolk	Coal
6	"	"	Indian	"	"	General
6	"	"	Gov. Dingley . . .	"	Portland	General
6	"	Tug	Carlisle	"	Philadelphia (towing)	
6	"	Barge	Salem	"	"	Coal
6	"	"	Ephrata	"	"	Coal (for Portland)
6	"	"	Neshaminy	"	"	Coal " "
6	"	Steamer	Dorchester	"	"	General
6	"	"	City of Rome . . .	"	Savannah	General
6	"	"	Hampden	"	Norfolk	Coal
6	"	"	Calvin Austin . . .	"	New York	General
6	"	"	Wilton	"	" "	General
6	"	"	Walter D. Noyes . .	"	Norfolk	Coal
6	"	Tug	Mercury	"	Vineyard Haven (towing)	
6	"	Barge	Brooklyn	"	New York	Coal
7	Foreign		Port Said, Maru . .	Japanese	Italian Ports, via New York	Olive Oil, Hides, etc.
7	"		Herbert G. Wylie . .	American	Tampico	Oil
7	"		Wascana	Norwegian	Louisburg, C. B.	Coal
7	"		Thistlemore	British	Liverpool	General
7	"		Levisa	American	Preston, Cuba	Sugar
7	Coastwise	Steamer	City of Gloucester .	"	Gloucester	General
7	"	"	Bristol	"	Norfolk	Coal
7	"	"	Belfast	"	New York	General
7	"	"	Ontario	"	Baltimore	General
7	"	"	Massasoit	"	Jonesport, etc.	General
7	"	Tug	Col. J. F. Gaynor . .	"	Sandwich (towing)	
7	"	Barge	No. 5	"	Philadelphia	Coal
7	"	Tug	Triton	"	New York (towing)	
7	"	Barge	Cohocton	"	" "	Coal (for Clark Island)
7	"	"	Shickshinny	"	" "	Coal
7	"	Tug	Harold	"	" " (towing)	
7	"	Barge	Iron Queen	"	" "	Coal Tar
7	"	Steamer	Carisco	"	Port Ivory, S. I.	Soap Stock
7	"	Tug	International	"	Philadelphia (towing)	
7	"	Barge	Langhorne	"	"	Coal
7	"	"	Silver Brook	"	"	Coal (for Plymouth)
7	"	"	Oak Hill	"	"	Coal
7	"	Steamer	Lake Fannin	"	Jacksonville	General
7	"	Schooner	Henrietta Simmons .	"	Nantucket	Junk
7	"	Steamer	Delaware	"	New York	General
8	"	"	Glen White	"	Norfolk	Coal
8	"	"	Cornish	"	New York	General
8	"	"	Gov. Dingley	"	Portland	General
8	"	"	Calvin Austin	"	New York	General
8	"	"	Steel Scafarer	"	Pacific Ports	General
8	"	Schooner	Spindrift	"	Georgetown, S. C.	Lumber
8	"	Tug	Battleboro	"	Norfolk (towing)	
8	"	Barge	Bango	"	"	Coal
8	"	"	Cohasset	"	"	Coal
9	Foreign		Columbia	British	Glasgow, Scot.	General for New York
9	"		Ningchow	"	Shanghai, etc.	General
9	"		Verentia	"	London	General
9	"		Vincenzo Florio . . .	Italian	Leghorn	General
9	"		Stanmore	British	Glasgow, Scot.	General

ARRIVALS OF FOREIGN AND DOMESTIC VESSELS (Continued)

<i>Date</i>	<i>Class</i>	<i>Name</i>	<i>Nationality</i>	<i>From</i>	<i>Nature of Cargo</i>
April 9	Foreign	San Bruno	British	Port Limon	Bananas & Coffee
9	"	Prince George . . .	"	Yarmouth, N. S. . . .	General
9	"	Geo. G. Henry . . .	American	Tampico	Oil
9	"	Australind	British	Australia	Wool & Casein
9	"	Scythian	"	London	General
9	Coastwise Steamer	City of Gloucester .	American	Gloucester.	General
9	"	Arlington	"	Norfolk	Coal
9	"	Belfast	"	New York	General
9	"	Cretan	"	Philadelphia	General
9	"	J. H. Devereaux . .	"	"	Coal
9	"	Middlesex	"	Norfolk	Coal
9	"	Nacoochee	"	Savannah	General
9	"	Seaconnet	"	Norfolk	Coal
9	Tug	Gettysburg	"	Philadelphia (towing)	
9	Barge	Yardley	"	"	Coal (for Lynn)
9	Tug	Fame	"	Norfolk (towing)	
9	Barge	Beattie	"	"	Coal
9	"	Irene	"	"	Coal (for Lynn)
9	"	Biwabik	"	"	Coal (for Beverly)
9	Tug	Murrell	"	" (towing)	
9	Barge	Flora	"	"	Coal
9	"	Edith	"	"	Coal
9	"	Annie	"	"	Coal (for Beverly)
9	Tug	Lehigh	"	Perth Amboy (towing)	
9	Barge	No. 781	"	" "	Coal
9	Schooner	W. H. Harriman . .	"	St. Andrews Bay . . .	Railroad Ties
9	Barge	No. 784	"	Perth Amboy	Coal
9	"	No. 785	"	" "	Coal
9	Steamer	Grecian	"	Baltimore & Norfolk .	General
9	"	Swiftsure	"	Curacao via F. R. . .	Oil
10	Foreign	Laertes	Dutch	Padang	General
10	Coastwise Steamer	Calvin Austin . . .	American	New York	General
10	"	City of Gloucester .	"	Gloucester	General
10	"	Lake Gilboa	"	Jacksonville & Charleston .	General
10	"	Long Beach	"	Norfolk	Coal
10	"	Suffolk	"	"	Coal
10	Barge	Socony No. 62 . . .	"	New York	Oil
10	Tug	Roger Williams . . .	"	" " (towing)	
10	Barge	Marion	"	" "	Coal
10	"	Edgewater	"	" "	Coal
10	Schooner	James C. Hamlen . .	"	Port St. Joe	Lumber
10	Tug	Boston	"	Norfolk (towing)	
10	Barge	Northern No. 14 . .	"	"	Coal
10	"	Northern No. 4 . . .	"	"	Coal (for Portland)
10	Tug	T. J. Hooper	"	" (towing)	
10	Barge	Eastern	"	"	Coal
10	"	Seth Linthicum . . .	"	"	Coal (for Lynn)
10	"	J. J. Hock	"	"	Coal " "
10	Steamer	Lake Elsmere	"	Jacksonville	General
10	Foreign	Azov	British	St. John, N. B.	None
11	Foreign	Steel Seafarer . . .	American		Lumber & Hides
11	"	Eudunda	British	Melbourne	Wool & Skins
11	"	Dania	Danish	Copenhagen	General
11	Coastwise	City of Gloucester .	American	Gloucester.	General
11	"	Anahuac	"	Fall River	Oil
11	"	Belfast	"	New York	General
11	"	Corsica	"	Norfolk	Coal

ARRIVALS OF FOREIGN AND DOMESTIC VESSELS (Continued)

<i>Date</i>	<i>Class</i>		<i>Name</i>	<i>Nationality</i>	<i>From</i>	<i>Nature of Cargo</i>
April 11	Coastwise	Steamer	Everett	American	Norfolk	Coal
11	"	"	Peter H. Crowell	"	"	Coal
11	"	"	Wilton	"	New York	General
11	"	"	Gov. Dingley	"	Portland	General
11	"	"	Merrimack	"	Philadelphia	General
11	"	"	Quantico	"	Norfolk	General
11	"	Tug	Cheektowago	"	Perth Amboy (towing)	
11	"	Barge	No. 701	"	" "	Coal
11	"	"	No. 786	"	" "	Coal
11	"	"	No. 783	"	" "	Coal (for Lynn)
11	"	Tug	Dunmore	"	Norfolk (towing)	
11	"	Barge	Garrett	"	"	Coal
11	"	Tug	Honey Brook	"	New York (towing)	
11	"	Barge	I & W B C C No. 8	"	" "	Coal (for Salem)
11	"	"	I & W B C C No. 9	"	" "	Coal (for Lynn)
11	"	"	I & W B C C No. 11	"	" "	Coal
11	"	Tug	Pallas	"	Sandwich (towing)	
11	"	Barge	Geo. J. Hughes	"	New York	Coal
11	"	Steamer	Coastwise	"	Norfolk	Coal
11	"	"	H. H. Brown	"	"	Coal
12	Foreign		Prince George	British	Yarmouth, N. S.	General
12	"		Oritani	"	Santa Marta	Bananas
12	"		Bcemsterdyk	Dutch	Rotterdam	General
12	Coastwise	Steamer	Calvin Austin	American	New York	General
12	"	"	City of Gloucester	"	Gloucester	General
12	"	"	Glendaurel	"	Norfolk	Coal
12	"	"	Melrose	"	"	Coal
12	"	Tug	Tamaqua	"	Philadelphia (towing)	
12	"	Barge	Betjayres	"	"	For Lynn
12	"	"	Molino	"	"	For Portland
12	"	Schooner	Bright	"	Norfolk	Coal
12	"	Steamer	Decpwater	"	"	Coal
12	"	"	Sewalls Point	"	"	Coal
12	"	Tug	Valley Forge	"	Philadelphia (towing)	
12	"	Barge	Macungie	"	"	Coal
12	"	"	Tohickon	"	"	Coal
12	"	Schooner	Geo. R. Bradford	"	Stonington	Stone
13	Foreign		Bowes Castle	British	Shanghai	General
13	"		West Quichee	American	Liverpool	General
13	"		City of Madras	British	Alexandria	Cotton & General
13	"		West Kebar	American	Hamburg	General
13	"		West Isleta	"	Manchester	General
13	"		Manaquí	British	Preston	Sugar
13	Coastwise	Steamer	City of Gloucester	American	Gloucester	General
13	"	"	Robin Goodfellow	"	Pacific Coast	General
13	"	"	Belfast	"	New York	General
13	"	"	Camden	"	Bangor	General
13	"	"	Blue Triangle	"	Pacific Ports	General
13	"	"	Gov. Dingley	"	Portland	General
13	"	"	J. M. Guffey	"	Port Arthur	Oil
13	"	"	Moldegaard	"	Norfolk	Coal
13	"	"	Dorchester	"	Baltimore	General
13	"	"	Ontario	"	Philadelphia	General
13	"	Schooner	Mary Langdon	"	Rockport	Lime
13	"	Tug	Lenape	"	Philadelphia (towing)	
13	"	Barge	Bast	"	"	Coal

ARRIVALS OF FOREIGN AND DOMESTIC VESSELS (Continued)

<i>Date</i>	<i>Class</i>		<i>Name</i>	<i>Nationality</i>	<i>From</i>	<i>Nature of Cargo</i>
April 13	Coastwise	Barge	Wiconisco	American	Philadelphia	Coal
13	"	"	Leesport	"	"	Coal
14	Foreign		Chickasaw	"	London	General
14	"		Merton Hall . . .	British	Rosario	Wool & Hides
14	"		Abbie S. Walker .	American	Port Midway, N. S. . . .	Woodpulp
14	"		Liberty Glo . . .	"	Bahai	Wool, Coffee
14	"		Hambleton Range .	British	Grangemouth	Coal
14	Coastwise	Steamer	Calvin Austin . .	American	New York	General
14	"	"	City of Gloucester .	"	Gloucester	General
14	"	"	City of Columbus .	"	Savannah	General
14	"	"	Glen White	"	Norfolk	Coal
14	"	"	Hampden	"	"	Coal
14	"	"	Stephen R. Jones .	"	"	Coal
14	"	"	Transportation . .	"	"	Coal
14	"	"	Cornish	"	New York	General
14	"	"	Newton	"	Baltimore	Coal
14	"	Tug	Plymouth	"	New York (towing)	
14	"	Barge	L & W B C No. 1 .	"	" "	Coal (for Salem)
14	"	"	L & W B C No. 5 .	"	" "	Coal
14	"	"	L & W B C No. 7 .	"	" "	Coal
14	"	Tug	Bathgate	"	Norfolk (towing)	
14	"	Barge	Chenango	"	"	Coal
14	"	"	Cutler	"	"	Coal
14	"	Tug	Piedmont	"	Philadelphia (towing)	
14	"	Barge	Number 14	"	"	Coal
14	"	"	Number 15	"	"	Coal
14	"	Tug	D. F. McAllister .	"	Elizabethport (towing)	
14	"	Barge	Hauto	"	"	Coal (for Portland)
14	"	"	Greenwood	"	"	Coal
15	Foreign		Carmania	British	Liverpool	Passengers only
15	Coastwise	Steamer	Wilton	American	New York	General
15	"	"	Belfast	"	New York	General
15	"	"	Camden	"	Bangor	General
15	"	"	Gov. Dingley . . .	"	Portland	General
15	"	"	Munmotor	"	Norfolk	Coal
15	"	"	Selwyn Eddy	"	"	Coal
15	"	"	Florida	"	" (towing)	Coal
15	"	Barge	W. B. Fancher . .	"	"	Coal
15	"	"	John Blight	"	"	Coal

APPENDIX F

NEW ENGLAND COAL RECEIPTS

1916-1922 — NET TONS

Anthracite and Bituminous

CALENDAR YEAR	TIDE AND RAIL	PER CENT OF TOTAL			
		TIDE	RAIL	TIDE	RAIL
1916 . . .	34,837,000	19,421,000	15,416,000	56	44
1917 . . .	35,184,000	17,114,000	18,070,000	49	51
1918 . . .	40,792,000	20,174,000	20,618,000	49	51
1919 . . .	28,760,000	11,837,000	16,923,000	41	59
1920 . . .	33,689,000	13,732,000	19,957,000	41	59
1921 . . .	28,562,000	12,509,000	16,053,000	44	56
1922 . . .	25,279,000	15,056,000	10,223,000	60	40

Anthracite

1916 . . .	10,715,000	5,228,000	5,487,000	49	51
1917 . . .	11,680,000	4,421,000	7,259,000	38	62
1918 . . .	13,621,000	4,117,000	9,504,000	30	70
1919 . . .	10,578,000	3,310,000	7,268,000	31	69
1920 . . .	11,255,000	3,521,000	7,734,000	31	69
1921 . . .	11,374,000	3,695,000	7,679,000	32	68
1922 . . .	6,471,000	2,060,000	4,411,000	32	68

Bituminous

1916 . . .	24,122,000	14,193,000	9,929,000	59	41
1917 . . .	23,504,000	12,693,000	10,811,000	54	46
1918 . . .	27,171,000	16,057,000	11,114,000	59	41
1919 . . .	18,182,000	8,527,000	9,655,000	47	53
1920 . . .	22,434,000	10,211,000	12,223,000	46	54
1921 . . .	17,188,000	8,814,000	8,374,000	51	49
1922 . . .	18,808,000	12,996,000	5,812,000	69	31

APPENDIX G

INCREASE IN PER DIEM RATES 1902 TO 1922

Prior to July 1902 the rent paid by one railroad to another for the use of its cars was based upon the actual mileage made by each car at the rate of .6 of a cent per mile so that the New England railroads in common with all other railroads paid only each day for the miles actually run on their rails each day by each car. Under this system a foreign car, if it waited a week to be moved, would cost nothing. But beginning July 1, 1902, the present system was inaugurated on the American railroads of charging for freight cars not on the basis of miles moved but instead a daily charge of 20¢ for each car out of the possession of the owning road. This per diem charge has gradually risen and since November 1, 1920, has been at the rate of one dollar per car day.

PER DIEM RATES—1902 TO 1922

July	1902 to July	1906	20¢ penalty	80¢ over 30 days			
July	1906 " July	1907	25	.....	75	"	"
July	1907 " March 1,	1908	50	No penalty		"	"
March 1,	1908 " Feb.	1910	25	.....		"	"
Feb.	1910 " July	1910	30	.....		"	"
July	1910 " Feb. 28,	1911	35	.....		"	"
Feb. 28,	1911 " July 1,	1911	30	.....		"	"
July 1,	1911 " Feb. 28,	1912	35	.....		"	"
March 1,	1912 " July 31,	1912	30	.....		"	"
Aug. 1,	1912 " Dec. 31,	1912	35	.....		"	"
Jan. 1,	1913 " Dec. 14,	1916	45	.....		"	"
Dec. 14,	1916 " April 1,	1917	75	.....		"	"
April 1,	1917 " March 1,	1920	60	.....		"	"
March 1,	1920 " Nov. 1,	1920	90	.....		"	"
Nov. 1,	1920 " date		1.00	.....		"	"

This daily charge has thus been raised because at the lower figures it was found that some roads still failed to provide their fair quota of cars, and also because the cost of freight cars has been rising due to bigger cars and the increase in wages and cost of material. Today at the dollar rate the owning company after paying the expense of upkeep and depreciation gets little more, if any at all, than mere interest upon the capital invested in the car. It is also true that during periods of business depression cars are thrown back on the owning line and many unemployed cars remain in storage on the home line and earn nothing.

This change, however, while it undoubtedly was a good thing for the country as a whole worked hardship on the New England lines, which at best are lines with shorter hauls and a higher percentage of terminals and junction points, subjecting the cars to more delay, decreasing the mileage earnings and increasing the per diem charges to be deducted therefrom.

We wish, however, to emphasize strongly that this \$1 per diem charge, which is constantly eating into the net earnings to be derived from hauling a car, introduced an important new element which must be given much consideration in the operating policies of all railroads. Over and over again and for thousands of cars in New England this per diem charge due to slow movement is eating up the net profit above the actual operating expense of hauling the car and in fact undoubtedly often goes further and in many cases reaches such an accumulated out of pocket charge that the railroad would be better off if the car had not come onto its system at all.

Under the old system of the mileage charge a railroad could let a foreign car stand idle on its rails just as long as it chose and as many of them as it pleased provided the foreign cars did not actually embarrass the movement of traffic. Cars could wait at a junction or terminal and be allowed slowly to accumulate for a run to some particular

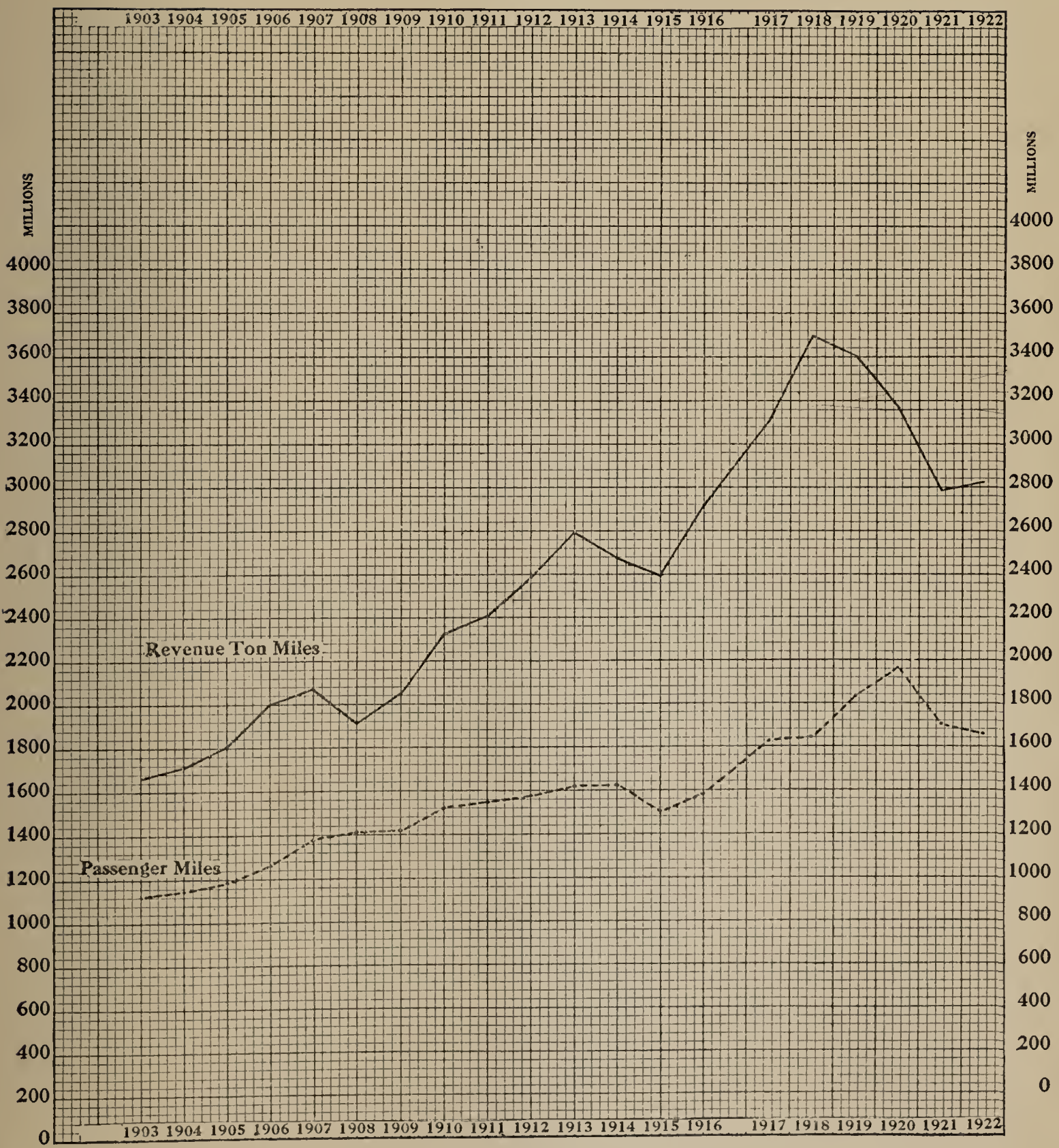
point until a full train load had been made up. This saved operating expenses by finally making it possible for the engine and the train crew to pull a full load to destination without stop.

Today a full train load is as desirable as it always has been and a railroad which receives from its western connecting line a full train for a straight line haul, and especially if it be a long line haul, and delivers the full train to an eastern connection is in clover. It has no classification delays and the maximum ton mile earnings with the minimum car per diems to be deducted. One of the disadvantages of the New England roads is that as primarily terminal roads they have relatively little of this through "beyond to beyond" service.

It may be that the operating policies of some of our New England railroads are still too much based on the "mileage" period and have not been sufficiently readjusted to meet the new conditions presented by the present "per diem" era.

APPENDIX H

REVENUE TON MILES AND PASSENGER MILES
NEW HAVEN RAILROAD
1903-1922



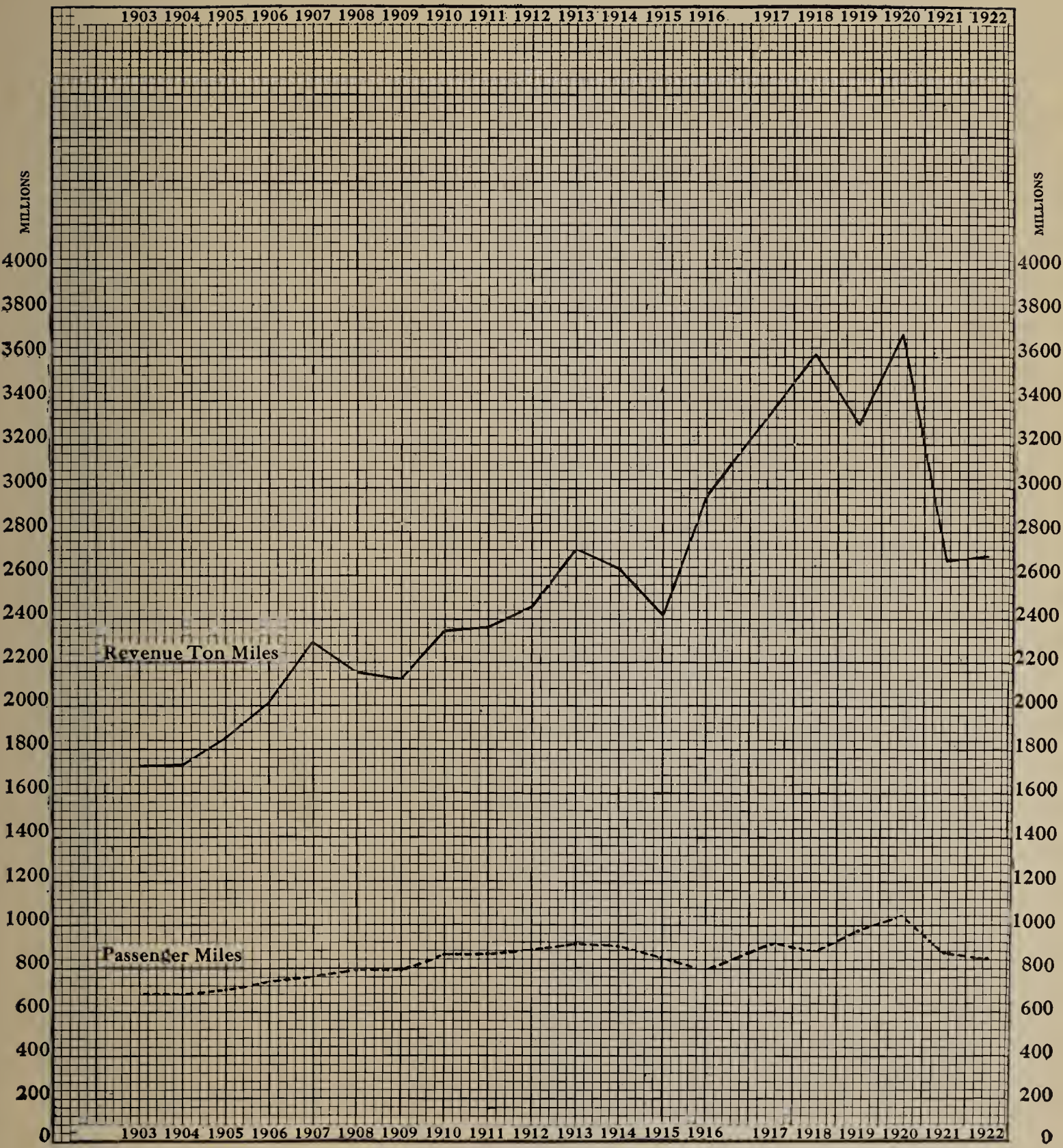
APPENDIX I

NEW HAVEN RAILROAD
VOLUME OF FREIGHT AND PASSENGER TRAFFIC, REVENUES AND RATES
1912-1922

	REVENUE TON MILES	FREIGHT REVENUE	AVERAGE REVENUE PER TON MILE (Cents)	PASSENGER MILES	PASSENGER REVENUE	AVERAGE REVENUE PER PASSENGER MILE (Cents)
Year ended June 30, 1912	2,581,740,000	\$35,088,775	1.359¢	1,573,146,000	\$27,151,702	1.726¢
1913	2,792,244,000	37,238,633	1.333	1,621,192,000	28,256,503	1.743
1914	2,676,369,000	35,598,938	1.330	1,620,005,000	27,861,849	1.720
1915	2,595,800,000	34,599,720	1.333	1,496,955,000	27,463,129	1.835
1916	2,922,051,000	41,667,878	1.426	1,589,142,000	30,051,908	1.891
Year ended Dec. 31, 1917	3,310,313,000	45,282,042	1.368	1,829,317,000	34,783,076	1.902
1918	3,691,973,000	56,216,029	1.519	1,843,634,000	39,676,864	2.152
1919	3,604,006,000	55,392,569	1.537	2,035,682,000	45,074,033	2.214
1920	3,376,976,000	62,505,722	1.851	2,165,185,000	52,590,628	2.429
1921	2,974,494,000	61,364,817	2.063	1,900,403,000	51,222,199	2.695
1922	3,020,410,000	66,157,968	2.190	1,857,933,000	49,443,460	2.661
Increase 1922 over 1912						
Amount	438,670,000	31,069,193	0.831	284,787,000	22,291,758	0.935
Per cent	17.0%	88.5%	61.1%	18.1%	82.1%	54.2%
Eastern District						
(Class 1 Roads) { 1922	151,389,805,000	1,773,544,662	1.172	18,104,009,000	514,462,146	2.841
{ 1912	133,425,498,000	852,060,603	0.638	15,401,754,000	274,724,616	1.783
Increase — Amount	17,964,307,000	921,484,059	0.534	2,702,255,000	239,737,530	1.058
Per cent	13.5%	108.1%	83.7%	17.5%	87.3%	59.3%
United States						
(Class 1 Roads) { 1922	339,730,198,000	3,994,521,645	1.176	35,507,222,000	1,075,262,223	3.028
{ 1912	259,981,628,000	1,897,692,838	0.730	32,316,263,000	639,818,627	1.980
Increase — Amount	79,748,570,000	2,096,828,807	0.446	3,180,959,000	435,443,596	1.048
Per cent	30.7%	110.5%	61.1%	9.9%	68.1%	52.9%

APPENDIX J

REVENUE TON MILES AND PASSENGER MILES
BOSTON & MAINE RAILROAD
1903-1922



APPENDIX K

BOSTON & MAINE RAILROAD
VOLUME OF FREIGHT AND PASSENGER TRAFFIC, REVENUES AND RATES
1912-1922

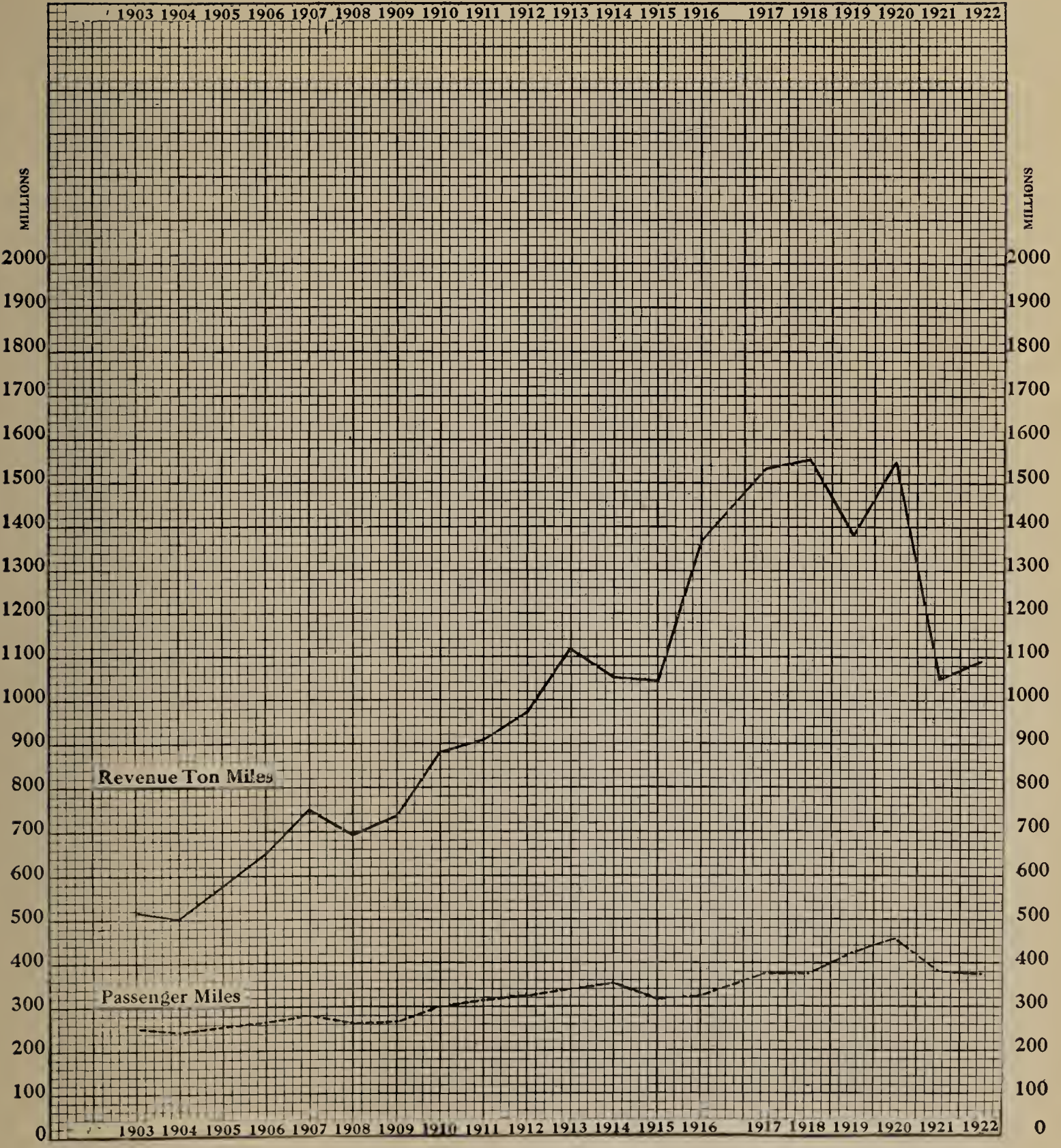
	REVENUE TONS HANDLED	REVENUE TON MILES	FREIGHT REVENUE	AVERAGE REVENUE PER TON MILE (Cents)	PASSENGERS CARRIED	PASSENGERS MILES	PASSENGER REVENUE	AVERAGE REVENUE PER PASSENGER MILE (Cents)
Year ended June 30, 1912	23,694,987	2,460,991,000	\$26,811,513	1.089¢	49,284,076	880,742,000	\$15,693,675	1.782¢
1913	25,473,568	2,721,197,000	28,692,689	1.054	49,918,103	904,059,000	16,049,174	1.775
1914	24,752,884	2,635,139,000	27,866,098	1.057	47,032,535	896,081,000	15,851,615	1.769
1915	22,678,480	2,416,458,000	27,042,879	1.119	43,472,158	849,949,000	15,502,197	1.824
1916	26,497,039	2,961,599,000	31,963,489	1.079	42,518,745	798,695,000	14,781,722	1.851
Year ended Dec. 31, 1917	28,457,813	3,341,899,000	35,119,306	1.051	47,564,736	926,966,000	17,558,069	1.894
1918	30,109,986	3,612,615,000	43,085,382	1.193	44,660,430	882,382,000	19,039,025	2.158
1919	26,515,893	3,293,288,000	43,303,091	1.315	50,804,904	976,112,000	21,798,847	2.233
1920	27,186,674	3,705,528,000	53,306,738	1.439	54,933,009	1,014,735,000	24,321,838	2.397
1921	20,060,610	2,673,769,000	47,660,693	1.783	47,683,233	876,113,000	23,274,713	2.657
1922	21,295,716	2,689,915,000	48,264,235	1.794	46,275,630	847,361,000	22,242,206	2.625
Increase 1922 over 1912								
Amount	-2,399,271	228,924,000	21,452,722	0.705	-3,008,446	-33,381,000	6,548,531	0.843
Per cent	-10.1%	9.3%	80.0%	64.7%	-6.1%	-3.8%	41.7%	47.3%
Eastern District								
(Class 1 Roads) 1922	.....	151,389,805,000	1,773,544,662	1.172	.....	18,104,009,000	514,462,146	2.841
1912	.....	133,425,498,000	852,060,603	0.638	.....	15,401,754,000	274,724,616	1.783
Increase — Amount	.....	17,964,307,000	921,484,059	0.534	.....	2,702,255,000	239,737,530	1.058
Per cent	.....	13.5%	108.1%	83.7%	.....	17.5%	87.3%	59.3%
United States								
(Class 1 Roads) 1922	.....	339,730,198,000	3,994,521,645	1.176	.....	35,507,222,000	1,075,262,223	3.028
1912	.....	259,981,628,000	1,897,692,838	0.730	.....	32,316,263,000	639,818,627	1.980
Increase — Amount	.....	79,748,570,000	2,096,828,807	0.446	.....	3,180,959,000	435,443,596	1.048
Per cent	.....	30.7%	110.5%	61.1%	.....	9.9%	68.1%	52.9%

- Italics indicate Decrease

NOTE. These statistics do not include the figures for the following small lines in the Boston & Maine system for which complete data was not available for the entire period. The revenue ton miles of these small lines in 1922 were only 4% of the revenue ton miles of the Boston & Maine system, and the passenger miles were only 2% of the passenger miles of the Boston & Maine system: Vermont Valley, St. Johnsbury & Lake Champlain, Mount Washington, Montpelier & Wells River, Sullivan County, York Harbor & Beach, Barre & Chelsea.

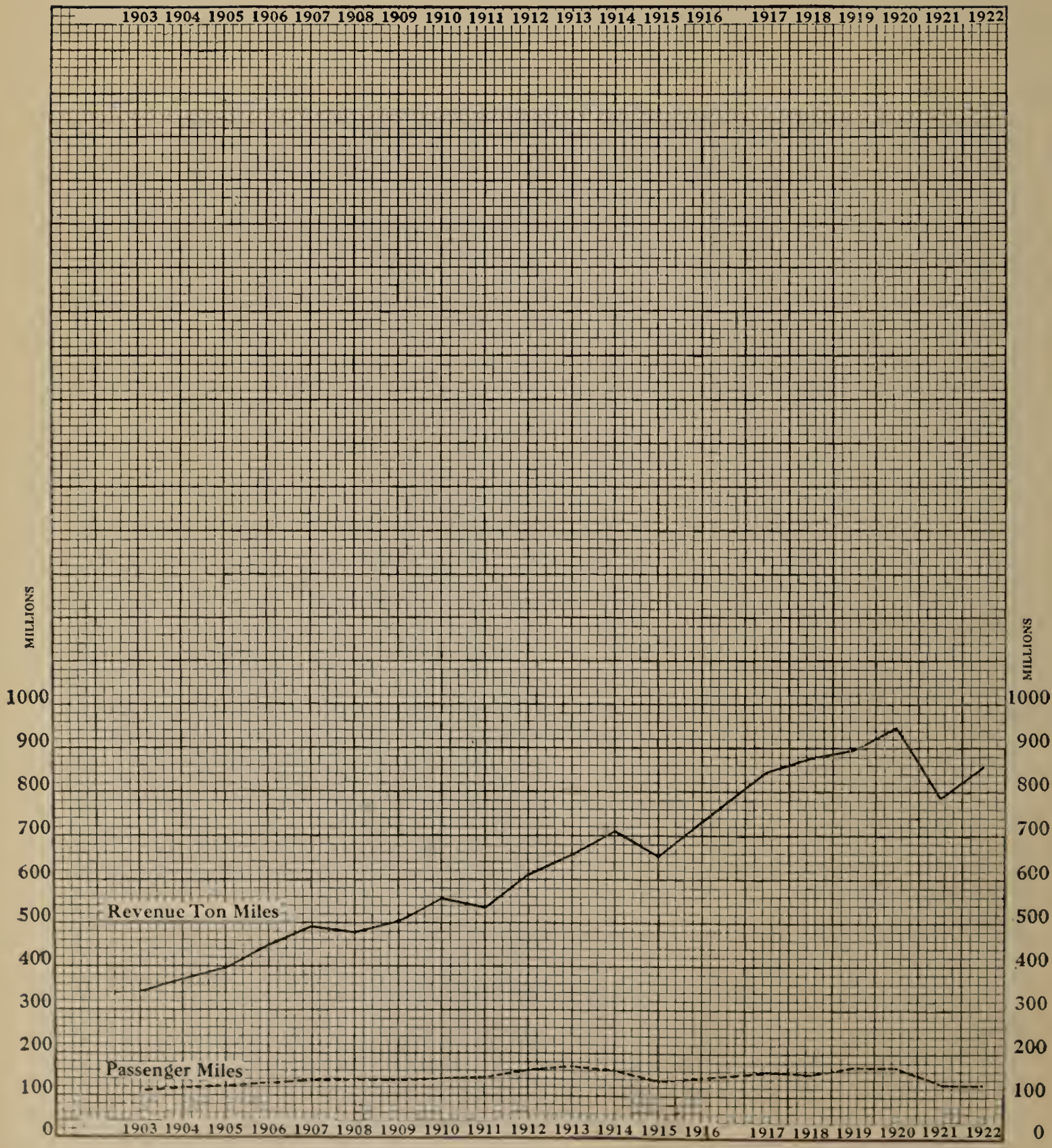
APPENDIX L

REVENUE TON MILES AND PASSENGER MILES
BOSTON & ALBANY RAILROAD
1903-1922



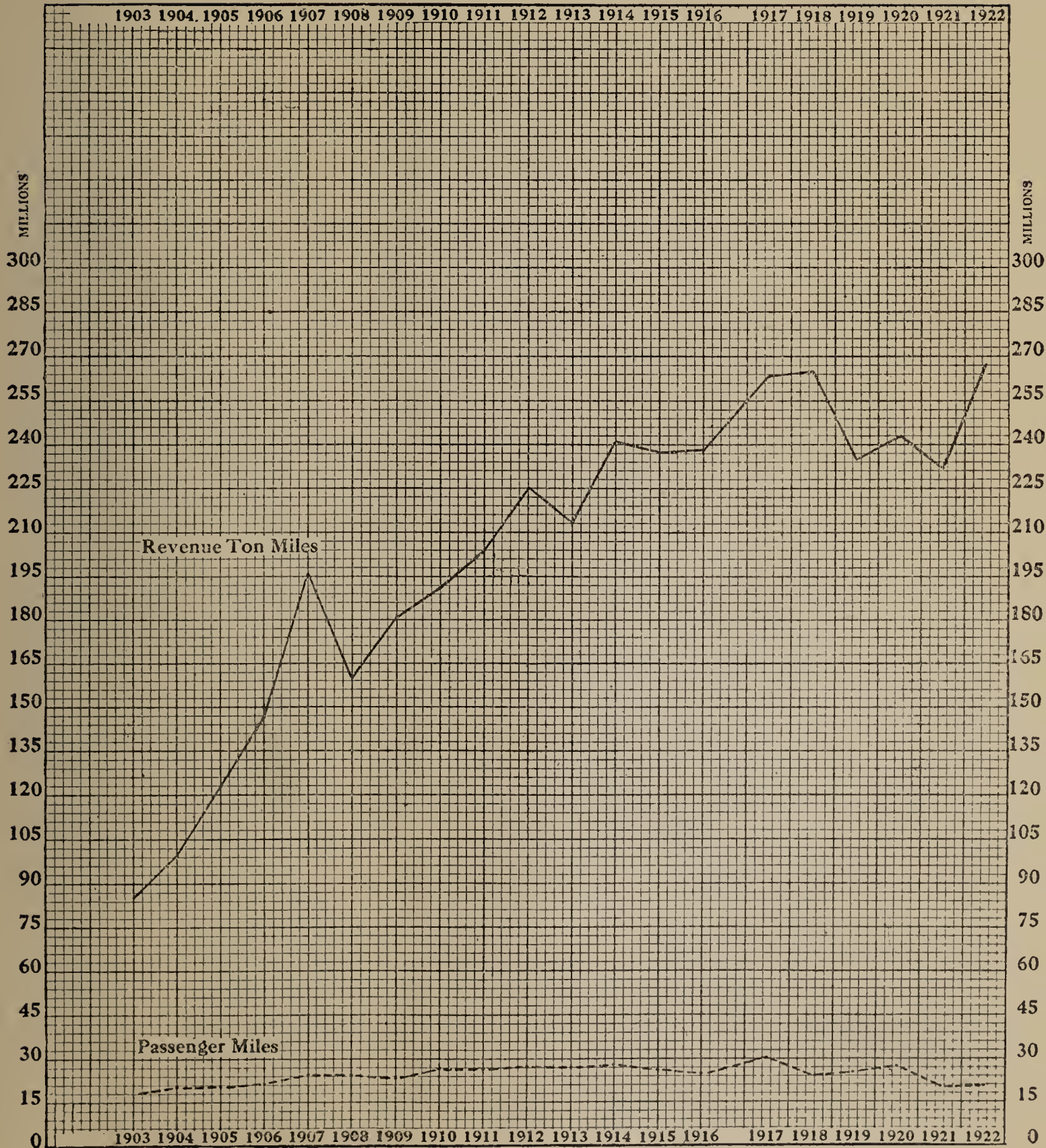
APPENDIX M

REVENUE TON MILES AND PASSENGER MILES
MAINE CENTRAL RAILROAD
1903-1922



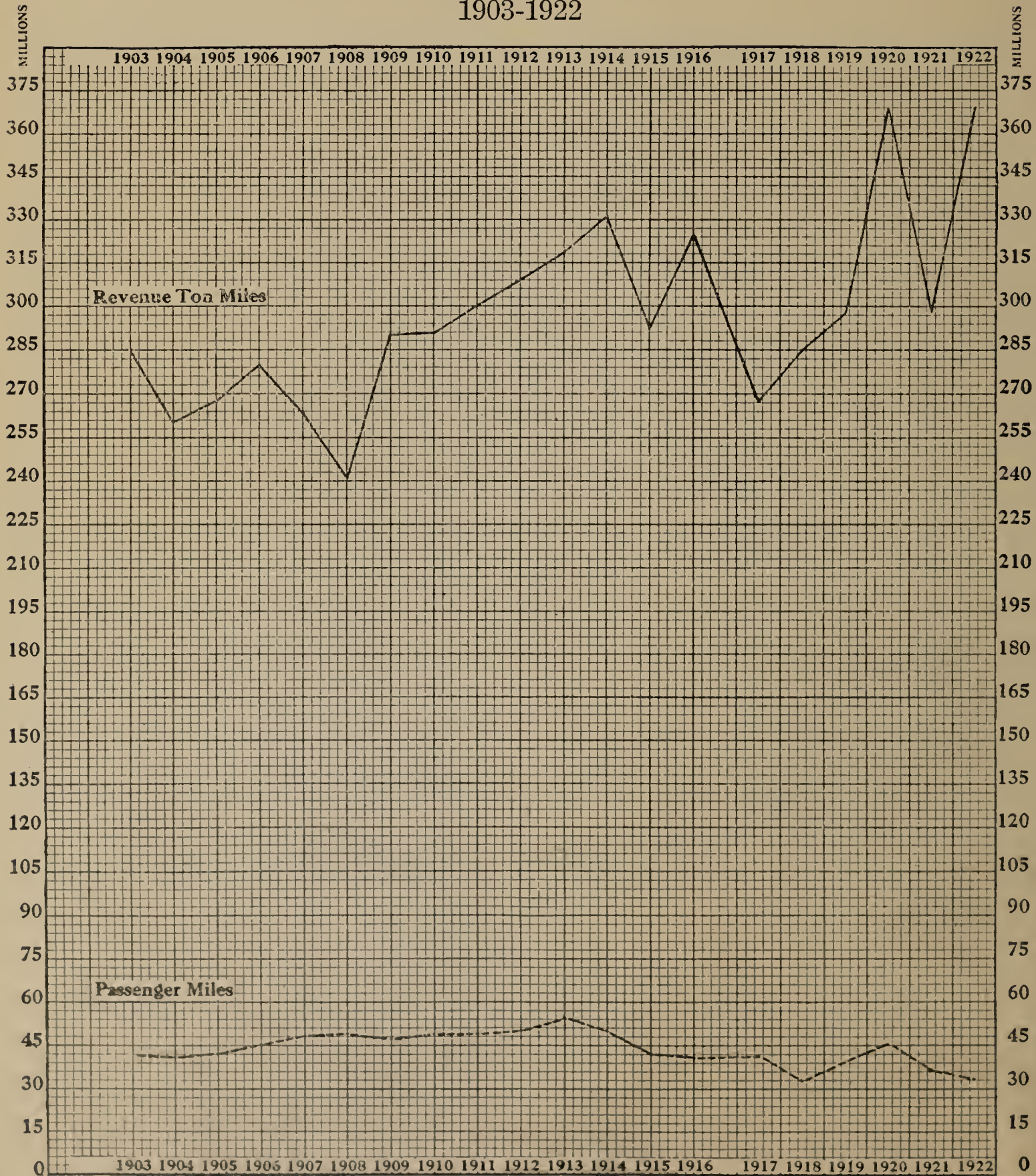
APPENDIX N

REVENUE TON MILES AND PASSENGER MILES BANGOR & AROOSTOOK RAILROAD 1903-1922

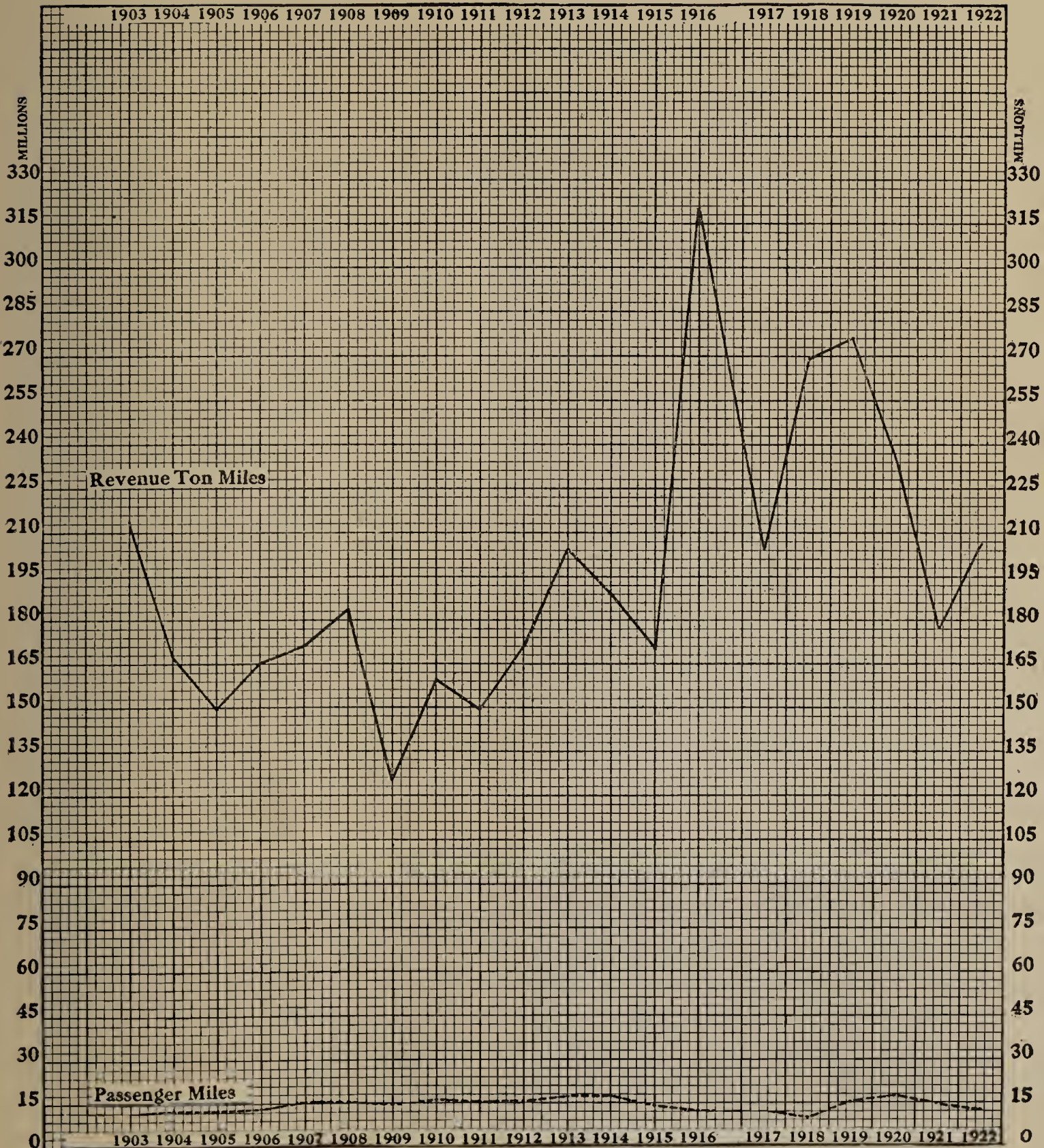


APPENDIX O

REVENUE TON MILES AND PASSENGER MILES CENTRAL VERMONT RAILWAY 1903-1922

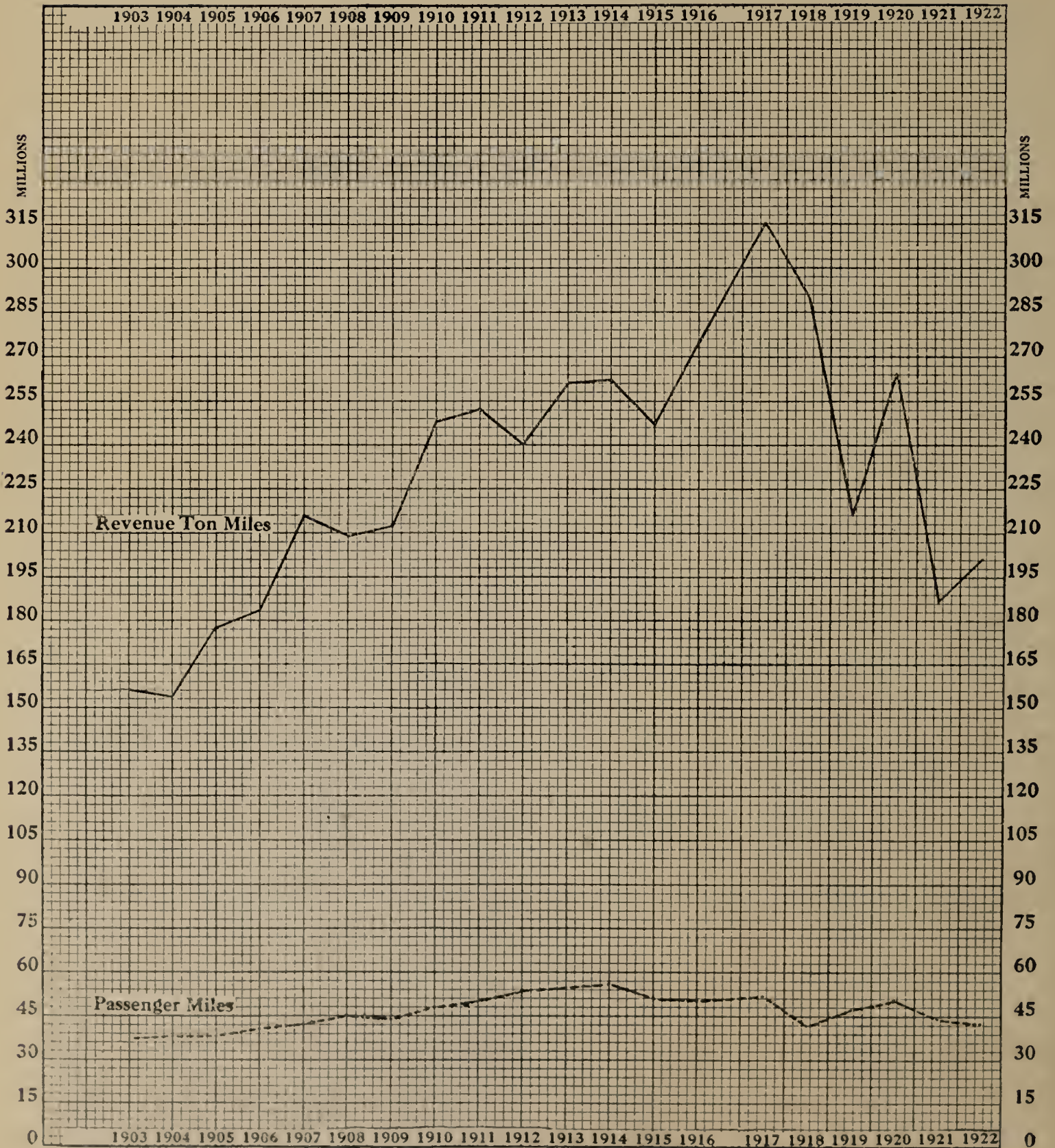


APPENDIX P

REVENUE TON MILES AND PASSENGER MILES
ATLANTIC & ST. LAWRENCE RAILROAD
1903-1922

APPENDIX Q

REVENUE TON MILES AND PASSENGER MILES RUTLAND RAILROAD 1903-1922



APPENDIX R

EXPENDITURES OF COMMONWEALTH OF MASSACHUSETTS ON PORT OF BOSTON 1859-1922 (Oct. 31)

1859-1922	BOSTON HARBOR	COMMON-WEALTH FLATS E. B.	COMMON-WEALTH FLATS S. B.	COMMON-WEALTH PIER 5	DRY DOCK	HAYWARD CREEK	MYSTIC RIVER	MALDEN RIVER	CHELSEA CREEK	COMMER-CIAL POINT DORCHESTER BAY	COMMON-WEALTH PIER 1-E. B.	TOTAL	OPERATION AND MAINTENANCE OF PROPERTY			
													COMMON-WEALTH PIER 5-S. B.	COMMON-WEALTH PIER 1-E. B.	OTHER PROPERTY	TOTAL
1859-1870			\$19,475.87									\$19,475.87				
1870-1911	\$1,561,225.24	\$35,084.27	3,845,500.60	\$381,877.09	\$435.50							5,824,122.70				
Incl.																
1912	19,768.53		339,961.81									359,730.34				
1913	6,734.35	6,215.03	249,969.89	1,887,061.87	13,872.02							2,163,853.16	\$7,671.43			\$7,671.43
1914	9,408.94	119,353.21	165,603.55	1,557,408.88	273,459.42		\$15,957.52			\$24,912.71	\$725,000.00	2,891,104.23	35,697.12		\$117.50	35,814.62
1915	8,702.17	39,491.47	70,513.49	71,530.07	194,466.97		3,959.06			28,300.39	39,600.00	456,563.62	43,208.09		4,268.47	47,476.56
1916	183.49	869,451.77	80,270.48	72,259.58	188,379.20	\$310.68	82,091.02					1,292,946.22	52,005.43		27,112.34	79,117.77
1917	1,908.61	11,400.97	12,323.01	16,133.76	411,563.96	17,445.71	161,856.70		\$18,844.08			651,476.80	62,916.37		9,461.23	72,377.60
1918	6,542.74	223,130.38	1,089,532.52		438,289.69	76,086.64			12,195.02		197,351.88	2,043,128.87	35,961.81		25,486.43	61,448.24
1919	2,887.88	303,105.40	175,454.71		1,441,178.75	165,975.33	425.01		29,132.14		151,954.01	2,270,113.23	12,103.46	\$5,837.28	70,585.01	88,525.75
1920	21,102.33	226,661.08	344,344.50		155,755.64	124,311.77	133,549.47	\$31,000.00	134.62		752.91	1,037,612.32	77,027.31	14,276.87	59,396.44	150,700.62
1921	15,824.60	349,466.74	119,232.02	76,916.24	45,000.00	1,554.75	1,220.00				3,911.43	613,125.78	11,718.95	12,120.48	59,434.22	83,273.65
1922 to Oct. 31 Incl.	80.97	440,292.64	86,104.79		2,250.00		10,840.54	1,268.70	34.87			540,872.51	84,396.73	7,340.84	38,770.04	130,507.61
	\$1,654,369.85	\$2,623,652.96	\$6,598,287.24	\$4,063,187.49	\$3,164,651.15	\$385,684.88	\$409,899.32	\$32,268.70	\$60,340.73	\$53,213.10	\$1,118,570.23		\$422,706.70	\$39,575.47	\$294,631.68	
Total expenditures for development and improvement													Total expenses for operation and maintenance			
\$20,164,125.65													\$756,913.85			

APPENDIX S

TENTATIVE SYSTEM 7A
NEW ENGLAND—GREAT LAKES

Extract from Statement of William S. Jenney, Counsel for the Delaware, Lackawanna & Western Railroad, before the Interstate Commerce Commission in Washington, May 19, 1923.

“Our objections to proposed System 7a.

The roads suggested for this System are the following:

New York, New Haven & Hartford,
New York, Ontario & Western,
Central New England,
Boston & Maine,
Maine Central,
Bangor & Aroostook,
Lehigh & Hudson River,
Lehigh & New England,
Delaware & Hudson,
Ulster & Delaware,
Delaware, Lackawanna & Western,
Buffalo, Rochester & Pittsburgh,
Pittsburgh & Shawmut,
Pittsburgh, Shawmut & Northern.

We do not understand that Professor Ripley suggested any such alliance, nor can we believe that it has been seriously considered by anyone. The Lackawanna was the last of the trunk lines to establish through rates with the New Haven road, such rates not having been put into effect until the year 1902. The rates when established were not with the idea of securing for the Lackawanna any con-

siderable New Haven business, but with the idea of relieving embarrassment with respect to serving its shippers, who had, at times, some traffic for New England points. The Lackawanna has no physical connection or direct interchange with any of the New England lines. Its interchange with the New Haven is through the Lehigh & Hudson via Maybrook, and with the Boston & Maine through the Delaware & Hudson via Mechanicville. Upon establishing through rates with the New Haven in 1902, the Lackawanna found the chief lines of New England traffic, so far as such traffic moved from the west, strongly held by its competitors, and very little of such traffic has ever moved over its lines. The Delaware, Lackawanna & Western Coal Company routes none of the anthracite coal produced from the mines formerly owned by the Lackawanna to New England, and very little of the anthracite coal produced along the lines of the Lackawanna is shipped to New England points. In the New England Divisions case figures were prepared showing the freight traffic interchanged by the New England railroads with the trunk lines over six alternative months from December 1918, to October 1919. From these six months' figures a constructive year was completed on the basis which the freight revenue for those six months bore to the total freight revenue for the twelve months ending October 31, 1919. This statement, so prepared by the New England roads, showed the traffic interchanged between them and the trunk lines to be as follows:

	Merchandise	Coal	Total
Central RR. of N. J.	1,651,994	2,311,261	3,963,255
Delaware & Hudson Co.	2,699,901	3,479,360	6,179,261
D. L. & W. RR.	547,967	17,002	564,964
Erie Railroad	847,136	531,554	1,378,690
Lehigh & New England	124,390	414,584	538,974
Lehigh Valley RR.	745,515	824,219	1,569,734
N. Y. Central RR. Co. (including B. & A. RR.)	5,906,599	2,521,257	8,427,856
N. Y., O. & Western	64,225	465,693	529,918
Pennsylvania RR.	3,279,654	3,403,140	6,682,794

While it is true that the System contemplates the inclusion of the Delaware & Hudson, and that large interchange is shown from the statement to have been had between the New England roads and the Delaware & Hudson, it is well known that one of the large items of such interchange consists of anthracite coal which is shipped by the Hudson Coal Company and other anthracite shippers along the line of the Delaware & Hudson Company into New England and the principal item consisting of bituminous coal. The principal interchange of the New England roads, however, is with the New York Central and the Pennsylvania. The latter company by large capital expenditures has effected a direct rail connection with the New Haven road through the New York Connecting Railway. It, and the New York Central are and must always continue to be favored routes for the shipment of traffic to and from New England.

If there be any meaning to the words of the law that 'existing routes and channels of trade and commerce shall be maintained,' certainly no effort should be made to attempt to divert New England tonnage to the Lackawanna. Such effort would be equally disastrous to the New England roads and to the Lackawanna.

The principal raw materials used in New England are wool, cotton, iron and steel, lumber and petroleum products, in addition to anthracite and bituminous coal. We have already shown that none of the anthracite coal produced from the former Lackawanna mines is shipped to New England and as the routing of this coal is in the hands of a separate corporation, the Delaware, Lackawanna and Western Coal Company, no change could be expected as the result of consolidation. With respect to bituminous coal there has been and doubtless always will be a large movement by water. The economy of carriage of bituminous coal in large cargoes by water from Norfolk and Baltimore to various ocean ports reached by the New England lines must continue to necessitate such

movement. Of the rail coal a considerable quantity is now being handled over roads proposed to be consolidated in the system with respect to which there would be no saving except at the expense of the present earnings to such line. While some saving would doubtless be made in more extended purchases of bituminous coal from points either near or tributary to mines of the system the same would be inconsequential so far as controlling the proposed plan. With respect to the other commodities we find the following. In the calendar year 1921 the Lackawanna handled about 18,000 tons of wool, the New Haven 143,000. As the Lackawanna has several woolen mills on its own line it is clear that little wool for the New Haven road was hauled over its line. In the same year the Lackawanna handled about 61,000 tons of cotton, the New Haven 361,000 tons. As cotton is consumed at many points on the Lackawanna System it follows that little of this commodity was handled over its line for New Haven points. In the same year Lackawanna handled 248,000 tons of petroleum products, New Haven 1,253,000. The Lackawanna does not reach any of the large petroleum plants in New Jersey, Pennsylvania or New York, but serves a considerable market for such products and performs intermediate service on a considerable movement, which is neither to nor from New England, and it could not have participated to any material extent in the haulage of these products for New Haven destinations. An examination by us of similar statistics with respect to iron, steel and lumber results in the same conclusion.

The interchange statement above shows the interchange between New Haven and Lackawanna via Maybrook, but not the interchange between Lackawanna and Boston & Maine points via Mechanicville, which in the statement is credited to the Delaware & Hudson, the line through which we interchange. Figures of interchange, therefore, between the Lackawanna and Boston & Maine are not available. The tons interchanged at this gateway between

Boston & Maine and Delaware & Hudson as above suggested represent largely coal and include also interchange though this gateway via the Delaware & Hudson from the Erie, Pennsylvania and Lehigh Valley and Central Railroad of New Jersey roads in addition to the Lackawanna; probably also some other scattering connections.

There are consumed in Boston & Maine territory large quantities of the same commodities referred to with respect to the New Haven, which do not originate on the Lackawanna or its connections. An examination by our Traffic Department satisfies us that the Lackawanna is a minor factor as to Boston & Maine traffic.

In view of the foregoing it is apparent that from a traffic standpoint no public benefit could result from such a consolidation as is proposed.

When we consider the same from an operating standpoint we find that any effort to change the routing of traffic from the existing routes via the route suggested in this consolidation would result in longer mileage, large capital expenditures for additional terminal yards and interchange tracks and the substitution of a more expensive route with respect to curves and grades than the route over which the traffic has in the past moved. The natural route for New England traffic south and southwest is via the Pennsylvania and Baltimore & Ohio lines; particularly the former. The natural route west from the northern portion of the New England territory is via the New York Central and from the southern portion via the Pennsylvania. While some traffic may advantageously move via Maybrook and Mechanicville over lines of the other trunk line carriers it is limited in amount and any attempt to increase it would be at such an increased cost of operation as to be of little profit to the proposed consolidated line.

Lastly, when we consider this proposed consolidation from a financial standpoint we have but to turn to the result of the operation of the lines forming the proposed

system for the year 1921 which is on Exhibit 3 attached. The showing for the year 1922 would have been disastrous because of the shop crafts and anthracite strikes, and because of the increased cost of coal resulting from the bituminous strike. 1921 is an average year, and shows from the Exhibit 3-C *that this system would have failed by over twenty million dollars to pay its fixed charges.* The question, therefore, remains, would such a consolidation result in increased earnings? The answer, of course, must be in the negative. If the Lackawanna alone of the trunk lines is to end at Buffalo and all of its connections at Buffalo are to be consolidated with other trunk lines it is apparent that but little traffic moving from western points to New York can be expected to be turned over by its competitors to the Lackawanna at Buffalo. To do so would be to deprive its competitors of the long haul to New York. Moreover, as has been shown, it would be unlikely that the Lackawanna could give to such shippers as good service to New England points as could be given by the Pennsylvania and New York Central over more direct and economical routes. We have already shown that from a financial standpoint the Lackawanna, with its free surplus taken away, could not carry the load of weaker lines. It certainly could not, if consolidated with the New England Lines, help them financially and the result would be to pull the Lackawanna into the same unfortunate situation as now confronts the New England Lines.

The New England situation is a most difficult one to solve in any effort to consolidate the railroads of the United States into systems which may successfully compete and earn a reasonable return upon the value of the properties making up such systems, but certainly no solution can be found in any effort to tie up the New England Lines with one of the trunk lines, such as the Lackawanna or Lehigh Valley. It would be more natural to divide such lines to the Pennsylvania and New York Central Systems. To do this, however, would not only tend to

augment to size of corporations already, in the opinion of many experts, too large for the best and most efficient operation, but would render the creation of other competing lines in Official Classification Territory the more difficult. In our view, therefore, the most practical solution is the consolidation of the New England Lines into one system with such preferential treatment with respect to division of rates as can fairly be made and in the hope that through consolidation economy of operation may result to an extent sufficient to put such lines on a paying basis.”

*Quoted from printed statement of
William S. Jenney, before the Inter-
state Commerce Commission.*

Docket No. 12,964 (pp. 10–18)

APPENDIX T

THE NEW YORK, NEW HAVEN & HARTFORD
RAILROAD COMPANYTENTATIVE PLAN OF
READJUSTMENT OF CAPITALIZATION

PRELIMINARY

THE purpose of this plan is without a receivership to provide for such a reduction of the fixed charges of the New Haven Company as will, with the State cooperation suggested in the Committees' report, fully restore the credit of the Company.

Obviously the fixed charges cannot be reduced ratably, but due regard must be had to the position and security of each item. The distribution of the reduction among the several issues of securities must be finally determined by holders of the issues affected, and the details of this plan are submitted as suggestions for consideration in the belief that they may be of material assistance, since they have been arrived at impartially and from the point of view of a survey of the system as a whole, with the benefit of all facts developed by the study which the Committee has made.

The plan presents a classified statement of funded debt and fixed charges, together with a program for its treatment. In formulating this classified statement an attempt has been made to include the charges resting upon all parts of the system, and to group these charges in such manner as will be most convenient for reference.

Throughout the plan an attempt is made to give net figures after eliminating intercompany holdings and in this connection ignoring for the sake of simplicity the fact that the leases are not perpetual.

NEW HAVEN SYSTEM CAPITALIZATION

as of December 31, 1922

I. FIXED CHARGES

FIRST PART: RAIL SYSTEM ITEMS

(Includes All Leased Rail Lines, Central New England, New York, Westchester & Boston, and one-half New York Connecting, and excludes intercompany items among these companies)

(Excludes Boston Terminal Company, Boston & Maine, New York, Ontario & Western, and Rutland)

A. New Haven Company Liabilities:

ITEM	PRINCIPAL AMOUNT	ANNUAL CHARGES
1. Equipment Trust Obligations	\$10,066,700	\$590,837
2. Divisional Liens (See detail p. 320)	56,490,000	2,402,225
3. Secured Notes Issued to Federal Government	83,646,500	5,018,790
4. Debentures Expressly Secured by First and Refunding Mortgage (See detail p. 321)	133,358,351	6,719,414
5. Other Debentures (See detail p. 321)	16,758,000	670,320
6. Central New England (See detail p. 321)	12,227,000	495,080
7. New York, Westchester & Boston 4½s of 1946	19,200,000	864,000
8. Leased Line Stocks and Bonds (See detail p. 322)	40,767,725	2,536,594
9. One-half New York Connecting Railroad Co. 4½s of 1953	12,000,000	540,000
10. Boston Railroad Holding Company 4% Pre- ferred Stock	2,800,000	112,000
Total Group A	\$387,314,276	\$19,949,260

B. Rail Obligations on Which the New Haven Company is Not Liable:

11. For detail see page 322	3,700,800	128,566
Total Groups A and B	\$391,015,076	\$20,077,826

SECOND PART: TROLLEY AND MARINE SUBSIDIARY ITEMS

(Excludes intercompany items and all New England Investment & Security items upon which the New Haven Company is not liable)

C. On Which the New Haven Company is Liable:

12. Trolley (See detail p. 323)	26,686,575	1,199,880
Total Groups A, B and C	\$417,701,651	\$21,277,706

D. On Which the New Haven Company is Not Liable:

13. Trolley (See detail p. 323)	\$2,234,000	\$122,160
14. Hartford & New York Transportation Company 4½s of 1934	183,000	7,635
Total Group D	\$2,417,000	\$129,795
Total Groups C and D	\$29,103,575	\$1,329,675
Total Groups A, B, C and D	\$420,118,651	\$21,407,501

II. CAPITAL STOCK

Outstanding Par Value Exclusive of Premiums \$157,117,900

III. NOTE

The total principal amount of fixed charge obligations as given in Group **A** above varies from the sum of \$317,239,595, given on p. 62 of the accompanying report chiefly in that Group **A** includes, and the other figure does not, the Leased Line Stock and Bonds, half the New York Connecting Railroad 4½s, and the guaranteed bonds of the New York, Westchester & Boston.

The annual fixed charge of \$20,077,826 given for Groups **A** and **B** above varies from the annual fixed charge item of \$20,919,731 given for 1922 on p. 212 of the committee's report chiefly in that the former item omits the "Other Deductions" of \$1,667,882 and minor rental items included in the report, but includes the interest on the New York Connecting Railroad Bonds which in the report are covered in the operating revenue item.

NEW HAVEN SYSTEM CAPITALIZATION — DETAIL

DETAIL OF ITEM 2: DIVISIONAL LIENS

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
New York, Providence & Boston .	4	April 1, 1942	\$1,000,000	\$40,000
Housatonic R.R. Co.	5	Nov. 1, 1937	2,839,000	141,950
Danbury & Norwalk R.R.	5	April 1, 1925	150,000	7,500
“ “ “ “	4	June 1, 1955	350,000	14,000
Naugatuck R.R. Co.	4	May 1, 1954	2,500,000	100,000
Boston & New York Air Line R.R.	4	Aug. 1, 1955	3,777,000	151,080
Providence Terminal Co.	4	Mar. 1, 1956	4,000,000	160,000
Worcester & Conn. Eastern Ry. Co.	4½	Jan. 1, 1943	1,601,000	72,045
N. H. & Centerville St. Ry. Co. .	5	Sept. 1, 1933	283,000	14,150
Meriden Horse R.R. Co.	5	Jan. 1, 1924	415,000	20,750
Norwich St. Ry. Co.	5	Oct. 2, 1923	350,000	17,500
New London St. Ry. Co.	5	Oct. 2, 1923	150,000	7,500
Hartford, Manchester & Rockville Tramway Co.	5	Oct. 1, 1924	200,000	10,000
Hartford St. Ry. Co.	4	Sept. 1, 1930	2,500,000	100,000
Greenwich Tramway Co.	5	July 1, 1931	320,000	16,000
Meriden, Southington & Com- pounce Tramway Co.	5	July 1, 1928	175,000	8,750
Pawtuxet Valley R.R. Co.	4	April 1, 1925	160,000	6,400
New England R.R. Co.	4	July 1, 1945	10,000,000	400,000
“ “ “ “	5	July 1, 1945	7,500,000	375,000
Stafford Springs St. Ry. Co. . . .	5	July 1, 1956	400,000	20,000
New Haven & Northampton . . .	4	June 1, 1956	2,400,000	96,000
N. Y., N. H. & H. R.R.-Harlem River & Port Chester	4	May 1, 1954	15,000,000	600,000
Branford Elec. Co.	5	Oct. 1, 1937	60,000	3,000
Total Bond Issues			\$56,130,000	\$2,381,625
Suffolk Savings Bank for Seamen and Others — Mortgage Note .	5½	\$200,000	.....	.....
Trustees Columbus Avenue Trust, Boston — Real Estate Mortgage	6	75,000	.....	.....
Sophia Keeley — 3-year mortgage.	6	85,000	360,000	20,600
Total Miscellaneous			\$360,000	\$20,600
GRAND TOTAL			\$56,490,000	\$2,402,225

DETAIL OF ITEM 4: DEBENTURES EXPRESSLY SECURED BY
FIRST AND REFUNDING MORTGAGE

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
New Haven Convertible	3½	1956	\$8,913,350	\$311,967
New Haven Non-Convertible . .	3½	1947	4,991,000	174,685
“ “ “ “	3½	1954	9,997,900	349,926
Naugatuck Railroad Co. . . .	3½	1930	234,000	8,190
Total 3½s			\$24,136,250	\$844,768
New Haven Non-Convertible . .	4	1947	\$5,000,000	\$200,000
“ “ “ “	4	1955	15,000,000	600,000
“ “ “ “	4	1956	15,000,000	600,000
Hartford St. Ry. Co., Series M .	4	1930	165,000	6,600
The Consolidated Ry. Co. . . .	4	1930	969,650	38,786
“ “ “ “	4	1954	4,255,000	170,200
“ “ “ “	4	Jan. 1955	2,309,000	92,360
“ “ “ “	4	April 1955	1,340,000	53,600
“ “ “ “	4	1956	2,011,000	80,440
Total 4s			\$46,049,650	\$1,841,986
New Haven Station	5	1923-4	\$200,000	\$10,000
New Haven Convertible	6	1948	38,541,200	2,312,472
New Haven European Loan Extended	7	1925	24,431,251	1,710,188
GRAND TOTAL.			\$133,358,351	\$6,719,414

DETAIL OF ITEM 5: OTHER DEBENTURES

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
Providence Securities Co. Gold Debentures	4	1957	\$5,595,000	\$223,800
New Haven Gold Debentures	4	1957	11,163,000	446,520
Total.			\$16,758,000	\$670,320

DETAIL OF ITEM 6: CENTRAL NEW ENGLAND OBLIGATIONS UPON
WHICH THE NEW HAVEN COMPANY IS LIABLE

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
Central New England Gold (Note A)	4	1961	\$11,927,000	\$477,080
Central New England Serial Notes (Note B)	6	1931-5	300,000	18,000
Total			\$12,227,000	\$495,080

NOTE A. Guaranteed by New Haven.
NOTE B. Secured by \$750,000 of the Central New England Gold 4s.

DETAIL OF ITEM 8: LEASED LINE STOCKS AND BONDS

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
Chatham Railroad stock	5	....	\$68,200	\$3,610 A
Holyoke & Westfield stock	14 B	....	240,000	37,670 B
Norwich & Worcester Preferred stock	8	....	2,902,900	232,232
Norwich & Worcester Common stock . . . . .	....	....	6,600	.....
Providence and Worcester stock	10	....	2,544,900	260,490 A
Old Colony stock	7	....	12,481,925	873,734
Boston & Providence stock	10	....	3,471,400	350,140 A
Providence, Warren and Bristol stock	6	....	387,800	23,268
Total stock			\$22,103,725	\$1,781,144
Holyoke and Westfield First	4½	1951	\$196,000	\$8,330 B
Providence and Worcester First	4	1947	1,500,000	60,000
Norwich and Worcester Debentures	4	1927	1,200,000	48,000
Boston and Providence Debentures	6	1923	2,170,000	130,200
Old Colony Plain	4	1938	4,000,000	160,000
" " "	3	1924	3,000,000	90,000
" " "	4	1925	5,598,000	223,920
" " "	3½	1932	1,000,000	35,000
Total bonds			\$18,664,000	\$755,450
Grand Total Stocks and Bonds			\$40,767,725	\$2,536,594

NOTE A. Includes allowances for organization expense: \$200 to Chatham Railroad, \$6,000 to Providence and Worcester, and \$3,000 to Boston and Providence.

NOTE B. Annual rental is fixed amount, of which in above table the necessary amount is allocated to interest on funded debt, and the balance to dividends on stock. Dividend rate given on stock is amount currently paid.

DETAIL OF ITEM 11: RAIL OBLIGATIONS UPON WHICH THE NEW HAVEN IS NOT LIABLE

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
Hartford & Conn. Western Stock	2	....	\$1,218,800	\$24,376
" " " " First	4½	1923	700,000	31,500
Dutchess County First	4½	1940	282,000	12,690
N. Y. & N. E. R.R. - Boston Terminal First	4	1939	1,500,000	60,000
Total			\$3,700,800	\$128,566

DETAIL OF ITEM 12: TROLLEY CAPITALIZATION UPON WHICH
THE NEW HAVEN COMPANY IS LIABLE

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
N. E. Investment & Security Preferred				
Stock	4	....	\$112,100 B	\$4,484 A
Springfield Railways Preferred.	4	....	3,387,900 B	135,516 A
Connecticut Ry. and Lighting Lease (Note C)				
Bonds of Conn. R. & L. . . . .		....	13,466,000 B	.....
Stock of Conn. R. & L. . . . .		....	17,120,100	.....
Total Rental . . . . .			.....	\$1,400,000 A
N. Y. & Stamford Ry. Bonds . . . . .	.4	1958	247,000 B	9,880 A
Total.			\$34,333,100	\$1,549,880
Less 25% of Conn. Railway & Lighting Items (Note C)			7,646,525	350,000
Balance			\$26,686,575	\$1,199,880

NOTE A. Guaranteed as to interest or dividends by New Haven Company, in form or in effect.

NOTE B. Guaranteed as to principal by the New Haven Company.

NOTE C. While the New Haven Company remains liable for the whole \$1,400,000 annual rent, the sub-lessee of the gas and electric properties covered by this lease has agreed to pay 25% of the total rent and it is believed may safely be considered good for the amount. For that reason this quarter of the total rent is deducted, even though the New Haven still remains liable for it. As to the remaining three-quarters of the rent, the Connecticut Company is the principal obligor and as the New Haven Company owns all the stock of the Connecticut Company it seems clear that this portion of the rent must be considered a part of the capitalization of the system.

DETAIL OF ITEM 13: TROLLEY CAPITALIZATION UPON WHICH
THE NEW HAVEN COMPANY IS NOT LIABLE

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
Berkshire St. Ry. Bonds	7	1927	\$800,000	\$56,000
“ “ “	4	1924	400,000	16,000
“ “ “	4	1923	300,000	12,000
			<u>\$1,500,000</u>	<u>\$84,000</u>
Connecticut Co. Equipment Trust				
Obligations . . . . .		....	\$308,000	\$16,860
N. Y. and Stamford St. Ry.	5	1931	426,000	21,300
Total			<u>\$2,234,000</u>	<u>\$122,160</u>

NEW STOCK

A new preferred stock to be created, entitled to dividends at the rate of five per cent per annum in priority to the common stock and no more; cumulative from and after January 1, 1927; divided into shares of the par value of \$100 each; convertible into common stock at the option of the holder at any time in the ratio of one and one-quarter shares of common stock for each share of preferred stock; sharing all voting powers with the common stock upon the basis of three votes for each share of preferred stock and one vote for each share of common stock; and preferred over the common stock in liquidation at the rate of one hundred dollars a share and cumulative dividends accrued and then unpaid thereon, and no more.

The capital stock now outstanding to be converted, share for share, into common stock of no par value. Both the preferred stock and the common stock to be issuable up to such aggregate amounts as from time to time shall be authorized by the commissions and other authorities having jurisdiction.

DISPOSITION OF NEW STOCK

New stock to be presently issued as follows:

Preferred Stock: In the cases of the bond and debenture issues specified below, the holder to surrender a certain per cent (40, 50 or 60 as specified) of the bonds and debentures he holds, and accept in exchange therefor new preferred stock as follows:

For each \$100 of such bonds or debentures surrendered bearing 5% interest or less, one share of preferred stock of the par value of \$100.

For each \$100 of such bonds or debentures surrendered bearing 6% interest or more, one and one-fifth shares of preferred stock of the par value of \$120.

Common Stock: To be issued share for share for the present capital stock.

An additional amount, sufficient to raise about \$15,000,000, to be offered to the present stockholders at about its market value. The payments which the present stockholders are thus to make for additional stock will equal \$10 a share on their present holdings.

CONVERSION OF BONDS AND DEBENTURES
INTO PREFERRED STOCK

TABLE

(For detail of basis see above under heading *Disposition of New Stock*)

NAME	RATE	DUE	PRINCIPAL AMOUNT	PERCENTAGE TO BE CON- VERTED INTO PFD. STK.	AMOUNT REDUC- TION	AMOUNT PFD. STOCK
N. H. Conv. Deb. . .	3½	1956	\$24,136,250	40	\$9,654,500	\$9,654,500
N. H. Non Conv. Deb.	3½	1947				
N. H. Non Conv. Deb.	3½	1954				
Naugatuck R.R. Deb.	3½	1930				
N. H. Non Conv. Deb.	4	1947	46,049,650	40	18,419,860	18,419,860
N. H. Non Conv. Deb.	4	1955				
N. H. Non Conv. Deb.	4	1956				
Hartford St. Ry. Co. Deb. Series M . .	4	1930				
The Consolidated Ry. Co. Deb. . . .	4	1930				
The Consolidated Ry. Co. Deb. . . .	4	1954				
The Consolidated Ry. Co. Deb. . . .	4	1955				
The Consolidated Ry. Co. Deb. . . .	4	1955				
The Consolidated Ry. Co. Deb. . . .	4	1956				
N. H. Conv. Deb. . .	6	1948	38,541,200	40	15,416,480	18,499,776
N. H. European Loan Extended.	7	1925	24,431,251	40	9,772,500	11,727,000
Boston & N. Y. Air Line	4	1955	3,777,000	50	1,888,500	1,888,500
N. H. & Northamp- ton Ref. & Cons. . .	4	1956	2,400,000	50	1,200,000	1,200,000
N. Y. Westchester & Boston First	4½	1946	19,200,000	50	9,600,000	9,600,000
Providence Securi- ties Co. Deb. . . .	4	1957	5,595,000	60	3,357,000	3,257,000
N. H. Deb.	4	1957	11,163,000	60	6,697,800	6,697,800
Totals			\$175,293,351		\$76,006,640	\$81,044,436

SUMMARY OF RESULTS

Principal Amount Bonds and Debentures to be Converted into Preferred Stock	\$76,006,640
Par Value of Preferred Stock to be Issued upon Conversion	81,044,436
Increase in Nominal Capital	<u>\$5,037,796</u>
Annual Interest Charges on Bonds Converted	3,641,498
Annual Dividend Charges on Preferred Stock to be issued upon Conversion, these charges being cumulative after Jan. 1, 1927 . .	<u>\$4,052,222</u>
Excess of New Contingent Charges over old Fixed Charges . . .	410,724
Fixed Charges before Conversion of Bonds (excluding Marine and Trolley Items)	20,077,826
Reduction as above	<u>3,641,498</u>
Balancee (excluding Marine and Trolley Items)	\$16,436,328

TREATMENT OF EUROPEAN LOAN DEBENTURES

The holders of the \$24,431,251 of debentures of the so-called European loan, now maturing in 1925, to accept new 6% First and Refunding Mortgage Bonds maturing November 1, 1937, at par in payment of thirty per cent of the principal of their debentures. Forty per cent of the principal of these debentures to be converted into preferred stock as above stated, and the balance to be paid in cash.

OTHER RECOMMENDATIONS

1. The New Haven Company has guaranteed dividends of \$4 a share a year on a total of \$6,300,000 (63,000 shares) of preferred stock divided as follows:

Boston Railroad Holding Co.	\$2,800,000
New England Investment & Securities Co.	112,100
Springfield Railway Companies	<u>3,387,900</u>
Total	\$6,300,000

An effort should be made so to deal with each of these issues as entirely to eliminate the guarantees by the New Haven Company.

2. The Federal Government as holder of \$83,646,500 of 6% secured notes of the Company should be requested to fund this debt for a reasonable period, at say four per cent interest.

3. The New Haven Company as above indicated is in effect the guarantor of the rental (\$1,400,000 a year) under the lease from the Connecticut Railway & Lighting Company of its trolley and gas and electric properties. An effort should be made to find a basis on which the entire guaranty of the New Haven Company can be eliminated.

4. The New Haven and the Pennsylvania Railroad are joint guarantors of \$24,000,000 of 4½% bonds of New York Connecting Railroad Company. The Connecting Company is unable to meet its interest without receiving abnormal allowances from the New Haven and the Pennsylvania, so that in fact the New Haven is being called upon under this guaranty. As the New Haven's liability here is unsecured, and so is of a lower grade than most of the bonds and debentures which under the plan are to be converted in part into preferred stock, an adjustment with the Pennsylvania should be sought under which the New Haven's responsibility for these bonds would take on, in part at least, the character of a contingent charge ranking with the New Haven's preferred stock rather than of a fixed charge.

Though the above plan is based on figures as of December 31, 1922, no substantial changes affecting the plan have taken place since that date.

APPENDIX U

BOSTON AND MAINE RAILROAD
TENTATIVE PLAN FOR EXTENSION OF DEBT

PRELIMINARY

The purpose of this plan is to suggest such extensions of the funded debt of the Boston and Maine as will relieve the company of the burden of the major part of its maturities during the next twelve years and, with the State co-operation suggested in the committee's report, fully restore the credit of the company.

The plan presents a classified statement of funded debt and fixed charges together with a specification of the debt proposed to be extended. In formulating this classified statement, an attempt has been made to include the charges resting upon all parts of the system and affiliated companies, and to group these charges in such a manner as will be most convenient for reference.

Throughout the plan an attempt is made to give net figures after eliminating inter-company holdings.

BOSTON AND MAINE SYSTEM CAPITALIZATION

(As of December 31, 1922)

I. FIXED CHARGES

(Includes All Leased Lines, and Lines Controlled by Stock Ownership)
 (Excludes Portland Terminal Co., Lake Champlain & St. Lawrence Ry., and
 Montreal & Atlantic Ry.)

A. Boston and Maine Company Obligations

ITEM	PRINCIPAL AMOUNT	ANNUAL CHARGES
1. Equipment Trust Obligations	\$7,719,600	\$454,101
2. Divisional Liens (See detail p. 331)	2,838,000	135,710
3. General Mortgage Bonds held by Federal Govern- ment (See detail p. 331)	41,849,479	2,510,968
4. Bonds Secured by General Mortgage Exclusive of those held by Federal Government (See de- tail p. 331)	72,297,000	3,056,615
5. Leased Line Stocks & Bonds (See detail p. 333) .	14,701,640	843,165
6. St. Johnsbury & Lake Champlain R.R. First Mort- gage 5s due March 1, 1944	1,328,000	66,400
Total Group A	\$140,733,719	\$7,066,959

B. Obligations on which Boston and Maine Company is
not liable

7. For detail see page 333	1,857,000	81,780
Total Groups A and B	\$142,590,719	\$7,148,739

II. CAPITAL STOCK

	PAR VALUE
First Preferred:	
Class A	\$18,860,000
“ B	7,648,800
“ C	7,910,300
“ D	4,327,000
“ E	65,000
Preferred	3,149,800
Common	39,473,091
Total	\$81,433,991

BOSTON AND MAINE SYSTEM CAPITALIZATION —
DETAIL

DETAIL OF ITEM 2: DIVISIONAL LIENS

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
Troy & Boston R.R. First	7	July 1, 1924	\$573,000	\$40,110
Worcester, Nashua & Rochester R.R. First	4	Jan. 1, 1930	735,000	29,400
Worcester, Nashua & Rochester R.R. First	4	Oct. 1, 1934	380,000	15,200
Portsmouth, Great Falls & Conway R.R. First	4½	June 1, 1937	1,000,000	45,000
Worcester, Nashua & Rochester R.R. First	4	Jan. 1, 1935	150,000	6,000
Total			\$2,838,000	\$135,710

DETAIL OF ITEM 3: GENERAL MORTGAGE BONDS HELD BY
FEDERAL GOVERNMENT

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
Boston & Maine Series C	6	Jan. 1, 1929	\$10,273,000	\$616,380
" " " " D	6	Jan. 1, 1929	15,841,000	950,460
" " " " G	6	Jan. 1, 1929	1,212,500	72,750
" " " " H	6	Nov. 1, 1930	5,443,979	326,638
" " " " J	6	Oct. 1, 1931	3,049,000	182,940
" " " " L	6	Jan. 1, 1929	1,030,000	61,800
" " " " K	6	June 1, 1935	5,000,000	300,000
Total			\$41,849,479	\$2,510,968

DETAIL OF ITEM 4: BONDS SECURED BY GENERAL MORTGAGE
EXCLUSIVE OF THOSE HELD BY FEDERAL GOVERNMENT

A. Bonds which have already (June 1923) matured

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
Boston & Maine	3½	Jan. 1, 1923	\$1,896,000	\$66,360
" " " Connecticut River R.R.	3½	Jan. 1, 1923	969,000	33,915
" " " Boston & Lowell R.R.. . . .	3½	May 1, 1923	250,000	8,750
Total Group A			\$3,115,000	\$109,025

B. Bonds maturing from June 1, 1923, to Dec. 31, 1935

NAME			RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES	
Boston & Maine			3½	Feb. 2, 1925	\$500,000	\$17,500	
"	"		4	Sept. 1, 1926	10,000,000	400,000	
"	"		4½	April 1, 1929	11,700,000	526,500	
"	"	General Mortgage	Series F	6	June 1, 1930	3,843,000	230,580
"	"	"	" I	7	Jan. 1, 1931	609,000	42,630
"	"	Fitchburg R.R.		4	May 1, 1925	3,660,000	146,400
"	"	"		4	Mar. 1, 1927	2,750,000	110,000
"	"	"		4	April 1, 1927	2,000,000	80,000
"	"	"		4	Jan. 1, 1928	1,450,000	58,000
"	"	"		4½	May 1, 1928	2,400,000	108,000
"	"	"		4½	Jan. 1, 1932	1,200,000	54,000
"	"	"		4½	Jan. 1, 1933	400,000	18,000
"	"	"		5	Jan. 1, 1934	1,872,000	93,600
"	"	Boston & Lowell R.R.		3½	Sept. 1, 1925	500,000	17,500
"	"	"		4	Nov. 1, 1926	500,000	20,000
"	"	"		4	July 1, 1927	325,000	13,000
"	"	"		4	April 1, 1929	350,000	14,000
"	"	"		4	April 1, 1932	1,000,000	40,000
"	"	"		4½	Feb. 1, 1933	1,000,000	45,000
Total Group B.					\$46,059,000	\$2,034,710	

C. Bonds Maturing after Dec. 31, 1935

Boston & Maine		4	Aug. 1, 1942	\$2,500,000	\$100,000
" " "	Sinking Fund	4	Feb. 1, 1937	1,919,000	76,760
" " "	. . . . .	4½	Jan. 1, 1944	6,000,000	270,000
" " "	. . . . .	3	July 1, 1950	5,454,000	163,620
" " "	Boston & Lowell R.R.	5	Mar. 1, 1936	1,250,000	62,500
" " "	Fitchburg R.R.	4	Feb. 1, 1937	5,000,000	200,000
" " "	Connecticut River R.R.	4	Sept. 1, 1943	1,000,000	40,000
Total Group C.				\$23,123,000	\$912,880
Total Groups A, B and C				\$72,297,000	\$3,056,615

DETAIL OF ITEM 5: LEASED LINE STOCKS & BONDS

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
Concord & Claremont (N. H) R.R. Stock . . . . .	.		\$700	
Concord & Portsmouth R.R. Stock	7		350,000	\$25,000A
Connecticut & Passumpsic River R.R. Preferred Stock	6		1,800,000	111,000A
Nashua & Lowell R.R. Corp. Stock	9		800,000	73,000A
Massawippi Valley Ry. Stock . .	6		300,000	18,000
Franklin & Tilton R.R. Stock . .	.		132,800	1C
New Boston R.R. Stock	4		60,000	2,400
Northern R.R. Stock	6		3,068,400	188,984A
Pemigewasset Valley R.R. Stock	6		503,400	30,504A
Peterborough R.R. Stock	4		351,900	14,376A
Stony Brook R.R. Corp. Stock . .	7		300,000	21,500A
Suncook Valley R.R. Stock . . .	.		278,640	.....D
Troy & Bennington R.R. Stock.	10		150,800	15,400A
Vermont & Massachusetts R.R. Stock	6		3,193,000	194,580A
Wilton R.R. Stock	8½		240,000	20,400
Total Stocks			\$11,529,640	\$715,145
Vermont & Massachusetts Ry. Plain	3½	May 1, 1923	\$772,000E	\$27,020B
Concord & Claremont (N. H.) R.R. First	5	Jan. 1, 1944	500,000E	25,000B
Connecticut & Passumpsic Rivers R.R. First	4	April 1, 1943	1,900,000	76,000B
Total Bonds			\$3,172,000	\$128,020
Total Stocks and Bonds			\$14,701,640	\$843,165

NOTE A. Includes allowances for organization expense: \$500 to Concord & Portsmouth R.R., \$3000 to Connecticut & Passumpsic Rivers R.R., \$1000 to Nashua & Lowell R.R. Corp., \$5000 to Northern R.R., \$300 to Pemigewasset Valley R.R., \$300 to Peterborough R.R., \$500 to Stony Brook R.R. Corp., \$320 to Troy & Bennington R.R., \$3000 to Vermont & Massachusetts R.R.

NOTE B. Interest guaranteed by Boston & Maine.

NOTE C. Fixed Rental \$1.00 per year.

NOTE D. Operated without payment of rental.

NOTE E. Principal guaranteed by Boston & Maine.

DETAIL OF ITEM 7: OBLIGATIONS ON WHICH BOSTON & MAINE
IS NOT LIABLE

NAME	RATE	DUE	PRINCIPAL AMOUNT	ANNUAL CHARGES
Sullivan County R.R. First . .	4	April 1, 1924	\$357,000	\$14,280
Vermont Valley R.R. First . .	4½	Oct. 1, 1940	1,500,000	67,500
Total			\$1,857,000	\$81,780

EXTENSION OF BONDS

The following Boston & Maine bonds, maturing prior to December 31, 1935, to be extended for twelve years, with interest during the period of the extension at the rate of 5% per annum in respect of all bonds now bearing 5% or less, and at 6% per annum in respect of all bonds now bearing six per cent or seven per cent:

NAME		RATE	DUE	PRINCIPAL AMOUNT
Boston & Maine		3½	Feb. 2, 1925	\$500,000
"	"	4	Sept. 1, 1926	10,000,000
"	"	4½	April 1, 1929	11,700,000
"	"	6	June 1, 1930	3,843,000
"	"	7	Jan. 1, 1931	609,000
"	"	4	May 1, 1925	3,660,000
"	"	4	Mar. 1, 1927	2,750,000
"	"	4	April 1, 1927	2,000,000
"	"	4	Jan. 1, 1928	1,450,000
"	"	4½	May 1, 1928	2,400,000
"	"	4½	Jan. 1, 1932	1,200,000
"	"	4½	Jan. 1, 1933	400,000
"	"	5	Jan. 1, 1934	1,872,000
"	"	3½	Sept. 1, 1925	500,000
"	"	4	Nov. 1, 1926	500,000
"	"	4	July 1, 1927	325,000
"	"	4	April 1, 1929	350,000
"	"	4	April 1, 1932	1,000,000
"	"	4½	Feb. 1, 1933	1,000,000
Total				\$46,059,000

The above constitute all the Boston & Maine bonds maturing prior to December 31, 1935, with the exception of equipment trust obligations, of bonds held by the Federal Government, of bonds secured by underlying mortgages, and of the bonds next mentioned.

The \$4,000,000 of 6% General Mortgage Series M Bonds, dated January 1, 1923, due January 1, 1933, to be similarly extended for twelve years. These bonds are not listed in the above statement for the reason that the statement is made up as of December 31, 1922, and the bonds are dated January 1, 1923.

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